

## LIST OF PUBLICATIONS AND ABSTRACTS YEAR 2015

No	Publication	Page no.
1	Abagiu AO, Cavar Z, Dannon P, George P, Habrat B, Kastelic A, Mahomedy Z, Popov P, Sarasvita R, Utami DS. Outcomes from the International Survey Informing Greater Insights in Opioid Dependence Treatment (INSIGHT) project. <i>Drugs Education Prevention &amp; Policy</i> , 2015; Early Online: 1–11. (IF: NA).	22
2	Abdulelah J, Syed Sulaiman SA, Hassali MA, Blebil AQ, Awaisu A, Bredle JM. Development and psychometric properties of a tuberculosis-specific multidimensional health-related quality-of-life measure for patients with pulmonary tuberculosis. <i>Value in Health Regional Issues</i> , 2015; 6C: 53-59. [Universiti Sains Malaysia, Research University, Postgraduate Research Grant Scheme (USM-RU-PRGS; grant no. 1001/PFARMASI/845040)]. (SCI IF: 0.564; H-Index: 2; Tier: Q3).	23
3	Abdul-Majeed S, Mohamed N, Soelaiman IM. The use of delta-tocotrienol and lovastatin for anti-osteoporotic therapy. <i>Life Sciences</i> , 2014; S0024-3205: 14; 00975-8. (SCI IF: 2.403; H-Index: 119; Tier: Q1).	25
4	Agarwal P, Aqil MD, Agarwal R. Aqueous humor TGF-β2 levels in patients with open-angle glaucoma: A meta-analysis. <i>Molecular Vision</i> , 2015; 21: 612-620. (SCI IF: 2.495; H-Index: 59; Tier: Q1).	26
5	Ahmad SM, Aznal SS, Tham SW. Prevalence of overactive bladder syndrome (OABS) among women with gynaecological problems and its risk factors in a tertiary hospital, Negeri Sembilan, Malaysia: Implication for primary healthcare providers. <i>Malaysian Family Physician</i> , 2015; 10(2): 2-8. (SCI IF: 0.122; H-Index: 6; Tier: Q4).	27
6	Ahmadi K, Soyiri IN. Vaping shadows tobacco control: Imperatives for Malaysia. <i>Journal of Smoking Cessation</i> , 2015; (Accepted on 21st May 2015). (SCI IF: 0.459; H-Index: 3; Tier: Q3).	28
7	Ahmed SI, Sulaiman SAS, Hassali MA, Shan LH, Hasan SS, Christopher LKC. Factors associated with poor CD4 and viral load control in patients with HIV/AIDS. <i>Journal of Medical Virology</i> , 2015; DOI: 10.1002/jmv.24389. (ISI IF: 2.347; SCI IF: 2.321; H-Index: 93; Tier: Q2).	29
8	Ahmed SI, Sulaiman SAS, Hassali MA, Thiruchelvam K, Hasan SS, Christopher LKC. Beliefs and practices of complementary and alternative (CAM) medicine among HIV/AIDS patients: A qualitative exploration. <i>European Journal of Integrative Medicine</i> , 2015; doi: 10.1016/j.eujim.2015.09.135. (ISI IF: 0.777; SCI IF: 0.983; H-Index: 10; Tier: Q2).	30
9	Al-Abed A-AA, Sutan R, Al-Dubai SA, Ibrahim Y, Aljunid SM. Factors associated with fall injury among children under 5 years old In Yemen. <i>Malaysian Journal of Public Health Medicine</i> , 2014; 14 (1): 101-110. (SCI IF: 0.188; H-Index: 1; Tier: Q4).	31

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10	Amal R Nimir, Sami A Radman, Mustafa A Mahdi, Ahmed M Saliem. Knowledge and practice of breast self-examination among students in a private higher learning institution in Malaysia. <i>Malaysian Journal of Public Health Medicine</i> , 2014; 14(3): 47-53. (SCI IF: 0.188; H-Index: 1; Tier: Q4).	32
11	Ambu S. Floods – The consequence of human intrusion into nature. <i>IeJSME</i> , 2015; 9(1): 1-2. (MyCite IF: 0.038).	33
12	Amirthalingam S, Kok SY, Lim TC, Ng YM. Topical antibacterials and global challenges on resistance development. <i>Tropical Journal of Pharmaceutical Research</i> , 2015; 14(5): 919-924. (ISI IF: 0.589; SCI IF: 0.713; H-Index: 16; Tier: Q3).	35
13	Appukutty M, Ramasamy K, Rajan S, Vellasamy S, Ramasamy R, Radhakrishnan AK. Effect of orally administered soy milk fermented with <i>Lactobacillus plantarum</i> LAB12 and physical exercise on murine immune responses. <i>Beneficial Microbes</i> , 2015; 17: 491-496. (ISI IF: 2.614; SCI IF: 2.443; H-Index: 14; Tier: Q2). [IMU R038-2008].	36
14	Arathi G, Venkateshbabu N, Deepthi M, Jayaleelashri J, Saranya V, Kandaswamy D. In-vitro antimicrobial efficacy of aqueous extract of Areca nut against <i>Enterococcus faecalis</i> . <i>Indian Journal of Research in Pharmacy and Biotechnology</i> , 2015; 3(2): 147. (IF: NA).	37
15	Ariffin F, Chin KL, Ng CJ, Miskan M, Lee VKM, Isa MR. Are medical students confident in taking a sexual history? An assessment on attitude and skills from an upper middle income country. <i>BMC Research Notes</i> , 2015; 8: 248. [IMU Internal Grant – IMU CT18_2011 & UiTM FRGS Grant]. (SCI IF: 1.414; H-Index: 25; Tier: Q2).	38
16	Ashwinder K, Kho MT, Chee PM, Lim WZ, Yap IKS, Choi SB, Yam WK. Targeting heat shock proteins 60 and 70 of <i>Toxoplasma gondii</i> as a potential drug target: In silico approach. <i>Interdisciplinary Sciences: Computational Life Sciences</i> , 2015; 1-14. [IMU Internal Grant – MBI01/2009(02)2011 and BMSci01/2010(13)2012]. (SCI IF: 0.667; H-Index: 9; Tier: Q3).	39
17	Aung HH, Shahida S, Lwin SS, Azlin SY. Ultrasonographic study on the persistent median artery of the forearm in Malaysian adults. <i>Surgical and Radiologic Anatomy</i> , 2015; 37: 725. [IIUM EDW B11-059-0537]. (ISI IF: 1.047; SCI IF: 0.964; H-Index: 39; Tier: Q2).	40
18	Babar MG, Hasan SS, Young OJ, Ahmed SI, Wong PS, Siti A, Rosdy Nik M, Malik N. The evaluation of perceived sources of stress and stress levels among Malaysian dental students. <i>International Journal of Medical Education</i> , 2015; 6: 56-61; doi: 10.5116/ijme.5521.3b2d. (IF: NA).	*
19	Bai MK, Radhakrishnan AK, Haleagrahara N. Protective mechanisms of flavonoids in parkinson's disease. <i>Oxidative Medicine and Cellular Longevity</i> , 2015; Article ID: 314560: 1-14. (ISI IF: 3.363; SCI IF: 3.222; H-Index: 27; Tier: Q2). [IMU 230-2011].	41

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20	Bhardwaj A, Nagandla K, Gupta ED, Saadon Bin I. Teaching and learning in workplace: Contemporary perspectives. <i>Education in Medicine Journal</i> , 2015; 7(3): e67-e72. (IF: NA).	42
21	Castelino RL, Laxmana AR, Balan P, KA F, Kannepady S. Evaginated odontome on maxillary lateral incisor - A reverse and a rare presentation. <i>Gaziantep Medical Journal</i> , 2015; 21 (1): 59-61. (IF: NA).	43
22	Chan CW, Teng CL. Discordance between medication adherence and blood pressure control in Malaysian primary care: The problem of therapeutic inertia. <i>IeJSME</i> , 2015; (in press). (MyCite IF: 0.038).	44
23	Chan CW. Evaluation of digital clubbing. <i>Australian Family Physician</i> , 2015; 44(3): 113-116. (SCI IF: 0.732; H-Index: 25; Tier: Q2).	45
24	Chang WC, Than SN. Dietary sodium adherence and health beliefs among patients on haemodialysis. <i>Singapore Nursing Journal (SNA)</i> , 2015; in press. (IF: NA).	46
25	Chellappan DK, Ganasesan S, Batumalai S, Candasamy M, Krishnappa P, Dua K, Chellian J, Gupta G. The protective action of the aqueous extract of <i>Auricularia polytricha</i> in paracetamol induced hepatotoxicity in rats. <i>Recent Patents on Drug Delivery and Formulation</i> , 2015; Volume 9. DOI: 10.2174/1872211309666151030110015. (SCI IF: 0.949; H-Index: 21; Tier: Q2).	47
26	Chen CL, Parolia A, Pau A, Celerino de Moraes Porto IC. Comparative evaluation of effectiveness of desensitizing agents in dentine tubule occlusion using scanning electron microscopy. <i>Australian Dental Journal</i> , 2015; 60: 65–72. doi: 10.1111/adj.12275. (ISI IF: 1.104; SCI IF: 1.23; H-Index: 42; Tier: Q1).	48
27	Chen JXJ, Lim PKC, Wong SF, Mak JW. Determination of the presence and levels of heavy metals and other elements in raw and commercial edible bird nests. <i>Malaysian Journal of Nutrition</i> , 2014; 20(3): 377-397. (SCI IF: 0.224; H-Index: 10; Tier: Q3).	49
28	Chen JXJ, Wong SF, Lim PKC, Mak JW. Culture and molecular identification of fungal contaminants in edible bird nests. <i>Food Additives and Contaminants: Part A</i> , 2015; 00(00): 1–13. Doi: <a href="http://dx.doi.org/10.1080/19440049.2015.1101494">http://dx.doi.org/10.1080/19440049.2015.1101494</a> . [BMedSc BMS I-01/2012(04)] (SCI IF: 1.833; H-Index: 33; Tier: Q1).	50
29	Cheng HP, Koh RY, Chye SM. Medicinal properties of <i>Strobilanthes crispus</i> : A Review. <i>BAOJ Pharmaceutical Sciences</i> , 2015; 1(2): 007. (IF: NA).	51
30	Chikira M, Ng CH, Palaniandavar M. Interaction of DNA with simple and mixed ligand copper(II) complexes of 1,10-phenanthrolines as studied by DNA-fiber EPR spectroscopy. <i>International Journal of Molecular Sciences</i> , 2015; 16: 22754. doi: 10.3390/ijms160922754. (ISI IF: 2.862; SCI IF: 2.972; H-Index: 53; Tier: Q1).	53

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31	Chong CW, Ahmad AF, Lim YaL, Teh CSJ, Yap IKS, Lee SC, Chin YT, Loke PN, Chua KH. Effect of ethnicity and socioeconomic variation to the gut microbiota composition among pre-adolescent in Malaysia. <i>Scientific Reports</i> , 2015; 5: 13338. DOI: 10.1038/srep13338. (SCI IF: 4.695; H-Index: 42; Tier: Q1).	54
32	Chong CW, Pearce DA, Convey P. Emerging spatial patterns in Antarctic prokaryotes. <i>Frontiers in Microbiology</i> , 2015; 6: Article 1058. [IMU external grant – IMUR121/2013]. (SCI IF: 3.773; H-Index: 32; Tier: Q1).	55
33	Chong KT, Wong SF, Mak JW, Loh LC, Ho TM. Sero-prevalence study of IgE responses to allergens from Malaysian house dust (HDM) and storage mites (SM). <i>Tropical Biomedicine</i> , 2015; 32(3): 1-17. [BMedSc BMS I-01/2011(02) and eSceince fund (02-02-09-SF007)] (ISI IF: 0.063; SCI IF: 0.931; H-Index: 20; Tier: Q3).	56
34	Chopdey PK, Tekade RK, Mehra NK, Mody N, Jain NK. Glycyrrhizin conjugated dendrimer and multi-walled carbon nanotubes for liver specific delivery of doxorubicin. <i>Journal of Nanoscience and Nanotechnology</i> , 2015; 15: 1088-100. (SCI IF: 1.551; H-Index: 74; Tier: Q3).	57
35	Das B, Sarkar C. An innovative flipped class intervention to improve dose calculation skills of phase I medical students: A preliminary study. <i>Procedia - Social and Behavioral Sciences</i> , 2015; 182: 67–74. (SCI IF: 0.221; H-Index: 16).	58
36	Dhandapani S, Tan KC, Gan SY, Barua A. Eating behaviour and food consumption in relation to Body Mass Index (BMI) among hospital foodservice personnel, Malaysia. <i>Australian Journal of Medical Science</i> , 2015; 2(4): 1-8. ISSN: 2203-9495 (Online). [IMU Internal Grant]. (SCI IF: 0.071; H-Index: 5; Tier: Q4).	*
37	Farah Syazana Ahmad Shahabuddin, Nur Hazirah Ahmat, Ahmed Ikhwan Mohamad, Lau KM, Siti Aisyah Mohd Yusof, Teh PC, Koh KC. A comparative study on how medical students learn about the use of abbreviations in medical practice. <i>IeJSME</i> , 2015; 9(2): 13-21. (MyCite IF: 0.038).	59
38	Furman BL. The peer-review process for journals in the biomedical sciences; love it or loathe it, it won't go away! <i>IeJSME</i> , 2015; 9(3): 1-3. (MyCite IF: 0.038).	60
39	Ganasegeran K, Perianayagam W, Rizal Abdul Manaf, Saad Ahmed Ali Jadoo, Sami Abdo Radman Al-Dubai. Patient satisfaction in Malaysia's busiest outpatient medical care. <i>The Scientific World Journal</i> , 2015; Volume 2015: Article ID 714754. DOI: <a href="http://dx.doi.org/10.1155/2015/714754">http://dx.doi.org/10.1155/2015/714754</a> . (SCI IF: 1.19; H-Index: 40; Tier: Q2).	61
40	George P, Ramasamy P, Thurairajasingam S, Shah Z. Patients that benefit from buprenorphine-naloxone on medically assisted treatment for opioid dependence in Malaysia: A case series. <i>The Medical Journal of Malaysia</i> , 2015; 70(4): 251-255. (SCI IF: 0.6; H-Index: 21; Tier: Q3).	62

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41	George P. Outcomes from the Malaysian arm of the international survey informing greater insights in opioid dependence treatment (INSIGHT) project. <i>The Medical Journal of Malaysia</i> , 2015; 70(2): 117-124. (SCI IF: 0.6; H-Index: 21; Tier: Q3).	63
42	Ghaneshwari R, Rohit KV, Jamunarani A, Ankur B. Awareness of risk factors for skin infections and its impact on quality of life among adults in a Malaysian city: A cross-sectional study. <i>Tropical Journal of Pharmaceutical Research</i> , 2015; 14(10): 1319-1326. [IMU Sem 7 research grant- (BPI-01/11(48)2014)]. (ISI IF: 0.589; SCI IF: 0.713; H-Index: 16; Tier: Q3).	64
43	Gupta G, Tay JJ, Lim YW, Chellappan DK, Candasamy M, Dua K. Pharmacological evaluation of antidepressant-like effect of genistein and its combination with amitriptyline: An acute and chronic study. <i>Advances in Pharmacological Sciences</i> , 2015; Volume 2015, Article ID: 164943. Doi: <a href="http://dx.doi.org/10.1155/2015/164943">http://dx.doi.org/10.1155/2015/164943</a> . (SCI IF: 2.189; H-Index: 9; Tier: Q1).	65
44	Gupta S, Parolia A, Jain A, Kundabala M, Mohan M, de Moraes Porto IC. A comparative effect of various surface chemical treatments on the resin composite-composite repair bond strength. <i>Journal of Indian Society of Pedodontics and Preventive Dentistry</i> , 2015; 33(3): 245-9. (IF: NA).	66
45	Hasan SS, Mei TK, Ahmed SI, David CWK, Chin OH, Basariah N. Quality of Life (QoL) and International Normalized Ratio (INR) Control in Malaysian patients on long-term anticoagulation therapy. <i>Public Health</i> , 2015; DOI: 10.1016/j.puhe.2015.05.014. (SCI IF: 1.508; H-Index: 47; Tier: Q2).	67
46	Hazwanie H, Gan SY, Nalliah S. The relevance of genetic polymorphism of CYP1A1, ICAM-1, TNF- $\alpha$ and INSR genes in women with polycystic ovary syndrome (PCOS). <i>Journal of Medical and Bioengineering</i> , 2015; 4(5): 367-370. doi: 10.12720/jomb.4.5.367-370. (IF: NA).	68
47	Ho KL, Chung WE, Choong KE, Cheah YL, Phua EY, Srinivasan R. Anti-proliferative activity and preliminary phytochemical screening of <i>Ipomoea quamoclit</i> leaf extracts. <i>Research Journal of Medicinal Plant</i> , 2015; 9 (3): 127-134. (SCI IF: 0.686; H-Index: 15; Tier: Q1).	69
48	Imran AS, Syed Azhar SS, Mohammad Azmi H, Lee CKC. Adverse drug reactions and quality of life in HIV/AIDS patients: Advocacy on valuation and role of pharmacovigilance in developing countries. <i>HIV &amp; AIDS Review</i> , 2015; 14: 28–30. (SCI IF: 0.265; H-Index: 4; Tier: Q4).	70
49	Ingle P, Patil PH, Lathi V. Study of rational prescribing and dispensing of prescriptions with nonsteroidal anti-inflammatory drugs in orthopedic outpatient department. <i>Asian Journal of Pharmaceutical and Clinical Research</i> , 2015; 8(4): 278-281. (ISI IF: 3.98; SCI IF: 0.742; H-Index: 13; Tier: Q2).	71

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50	Iqbal MA, Md S, Mustafa G, Kumar M, Baboota S, Sahni JK, Ali J. Formulation, optimization and evaluation of nanostructured lipid carrier system of acyclovir for topical delivery. <i>Journal of Bionanoscience</i> , 2014; 8: 1–13. (SCI IF: 0.775; H-Index: 5; Tier: Q4).	72
51	Jacob A, Parolia A, Pau A, Davamani Amalraj F. The effects of Malaysian propolis and Brazilian red propolis on connective tissue fibroblasts in the wound healing process. <i>BMC Complementary and Alternative Medicine</i> , 2015; 15: 294. doi: 10.1186/s12906-015-0814-1. (ISI IF: 2.02; SCI IF: 2.376; H-Index: 48; Tier: Q1).	73
52	Jafarieh O, Md S, Ali M, Baboota S, Sahni JK, Bhavna, Bhatnagar A, Ali J. Design, characterization, and evaluation of intranasal delivery of ropinirole-loaded mucoadhesive nanoparticles for brain targeting. <i>Drug Development and Industrial Pharmacy</i> , 2014; (online). DOI: 10.3109/03639045.2014.991400. (SCI IF: 1.887; H-Index: 60; Tier: Q2).	74
53	Jeevanandam J, Danquah MK, Debnath S, Meka VS, Yen San, Chan S. Opportunities for nano-formulations in type 2 diabetes mellitus treatments. <i>Current Pharmaceutical Biotechnology</i> , 2015; 16(10): 853-870. DOI: 10.2174/1389201016666150727120618. (ISI IF: 1.95; SCI IF: 2.256; H-Index: 54; Tier: Q1).	75
54	Jogad N, Patil PG, Gade V, Patil S. Alternative technique for handling indirect restorations during evaluation and cementation. <i>Journal of Prosthetic Dentistry</i> , 2015; doi: 10.1016/j.prosdent.2015.04.005. [Epub ahead of print]. (SCI IF: 1.448; H-Index: 77; Tier: Q1).	76
55	Junaid A, Deb PK, Ooi IH, El-Rabie D, Shuiab FO, Rajasingam R. Design, synthesis and pharmacological properties peptidomimetics: A review. <i>Asian Journal of Chemistry</i> , 2015; 27(9): 3137-3142. [IMU MAPC grant]. (SCI IF: 0.383; H-Index: 23; Tier: Q3).	77
56	Kaki VR, Akkinepalli RR, Deb PK, Pichika MR. Basic ionic liquid [bmIm]OH-mediated Gewald reaction as green protocol for the synthesis of 2-Aminothiophenes. <i>Synthetic Communications</i> , 2015; 45 (1): 119-126. DOI: 10.1080/00397911.2014.951898. (SCI IF: 1.101; H-Index: 55; Tier: Q3).	78
57	Kanneppady SS, Kanneppady SK. Prescription pattern of primary osteoarthritis in tertiary medical centre. <i>Journal of Medical Association of Thailand</i> , 2015. (IF: NA).	*
58	Kavana NJ, Lim LHS, Ambu S. The morphological characteristics of the sparganum stage of the Malaysian <i>Spirometra</i> species. <i>leJSME</i> , 2015; 9(2): 22-24. (MyCite IF: 0.038).	79
59	Kesharwani P, Tekade RK, Jain NK. Dendrimer generational nomenclature: The need to harmonize. <i>Drug Discovery Today</i> , 2015; 20: 497-499. (ISI IF: 3.850; SCI IF: 3.853; H-Index: 103; Tier: Q1).	80

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60	Kesharwani P, Tekade RK, Jain NK. Generation dependent safety and efficacy of folic acid conjugated dendrimer based anticancer drug formulations. <i>Pharmaceutical Research</i> , 2015; 32: 1438-50. (ISI IF: 3.420; SCI IF: 3.573; H-Index: 152; Tier: Q1).	81
61	Kew PE, Ling SJ, Wong SF, Lim PKC, Mak JW. Isolation and identification of mites associated with raw and commercial farm edible bird nests. <i>Tropical Biomedicine</i> , 2015; (accepted for publication) [BMedSc BMS I-01/2012(03)]. (ISI IF: 0.063; SCI IF: 0.931; H-Index: 20; Tier: Q3).	*
62	Khadija A, Sami ARA, Reema A, Aamenah H, Mustafa A, Saba K. Prevalence and associated factors of hepatitis C virus infection among renal disease patients on maintenance hemodialysis in three health centers in Aden, Yemen: A cross sectional study. <i>Saudi Journal of Kidney Diseases and Transplantation</i> , 2015; 26(2): 380-385. (SCI IF: 0.78; H-Index: 16; Tier: Q2).	82
63	Khor GL, Shariff ZM, Sariman S, Huang SLM, Mohamad M, Chan YM, Chin YS, Yusof BNM. Milk drinking patterns among Malaysian urban children of different household income status. <i>Journal of Nutrition and Health Sciences</i> , 2014; 1(4): 405. (IF: NA).	83
64	Kingston R, Mari Kannan M, Chin SN, Num KSF. Awareness and acceptance of human papillomavirus vaccination among health sciences students in Malaysia. <i>Virus Disease</i> , 2015; 26(4): 297–303. Doi: 10.1007/s13337-015-0287-3. [IMU BPharm Sem 7 Project BP –I-01/11/(28) 2014]. (ISI IF: 0.364).	84
65	Koh RY, Lim CL, Uhal BD, Abdullah M, Vidyadarshan S, Ho CC, Seow HF. Inhibition of transforming growth factor-β via the activin receptor-like kinase-5 inhibitor attenuates pulmonary fibrosis. <i>Molecular Medicine Reports</i> , 2015; 11: 3808-3813. (SCI IF: 1.578; H-Index: 14; Tier: Q3).	85
66	Koh RY, Sim YC, Toh HJ, Liam LK, Ong RZL, Yew MY, Tiong YL, Ling APK, Chye SM, Ng KY. Cytotoxic and apoptogenic effects of <i>Strobilanthes crispata</i> Blume extracts on nasopharyngeal cancer cells. <i>Molecular Medicine Reports</i> , 2015; 12: 6293-6299. [IMU Internal Grant -BPharm B0108_Res082011]. (SCI IF: 1.599; H-Index: 19; Tier: Q3).	86
67	Kutzsche S, Kutzsche H. Abraham Jacobi - den respektable rebellen. <i>Tidsskr Nor Barnelegeforen – Paidos (Journal of the Norwegian Pediatric Association)</i> , 2015; 33 (2): 72-74. [Text in Norwegian] (IF: NA).	*
68	Kutzsche S, Kutzsche H. Adele Dellenbaugh Hofmann – ungdomsmedisinens bestemor. <i>Journal of the Norwegian Society of Pediatrics, Paidos</i> , 2015; 33(4): in press. [text in Norwegian] (IF: NA).	*
69	Kutzsche S. Peter Johan Moe – en pioneer i norsk barneonkologi. <i>Tidsskr Nor Barnelegeforen – Paidos (Journal of the Norwegian Pediatric Association)</i> , 2015; 33 (1): 30-31. [Text in Norwegian] (IF: NA).	*

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70	Kutzsche S. Prof dr. med Ingeborg Rapoport – et forbilde. <i>Tidskr Nor Barnelegeforen, Paidos (Journal of the Norwegian Pediatric Association)</i> nr, 2015; 33(3): 122-125. [Text in Norwegian] (IF: NA).	*
71	Kutzsche S. Professor dr. med. Syllm-Rapoport – et forbilde. <i>Journal of the Norwegian Society of Pediatrics, Paidos</i> , 2015; 33(3): 122-125. [text in Norwegian] (IF: NA).	*
72	Kwa SK, Gupta ED. Cicatricial alopecia – A case study. <i>Australian Family Physician</i> , 2015; 44(7): 476-478. (SCI IF: 0.727; H-Index: 29; Tier: Q2).	87
73	Lai PSM, Sim SM, Chua SS, Tan CH, Ng CJ, Achike FI, Teng CL. Development and validation of an instrument to assess the prescribing readiness of medical students in Malaysia. <i>BMC Medical Education</i> , 2015; 15(1): 153. [University of Malaya Research Grant] (ISI IF: 1.22; SCI IF: 1.297; H-Index: 34; Tier: Q1).	88
74	Lakshman AR, Kanneppady SK, Castelino RL, Balan P. Role of dental physician in Marfan syndrome. <i>Archives of Medicine and Health Sciences</i> , 2015; 3: 110-2. (IF: NA).	89
75	Latha K, Meka VS, Songa S, Murthy KVR. Applicability of gum karaya in the preparation and in vitro evaluation of losartan potassium as chronotherapeutic drug delivery system. <i>Journal of Scientific Research</i> , 2015; 7(1-2): 65-74. (IF: NA).	90
76	Laxminarayan K, Barua A, Kanagasabai S, Sreekumar N. Desmopressin acetate (DDAVP) for preventing and treating acute bleeds during pregnancy in women with congenital bleeding disorders. status and date: New search for studies and content updated (no change to conclusions), published in 9(2015). (IF: NA).	91
77	Lee YL, Verma RK, Yadav H, Barua A. Health impacts of Facebook usage and mobile texting among undergraduate dental students: It's time to understand the difference between usage and an excessive use. <i>European Journal of Dental Education</i> , 2015; [IMU Internal Grant- Project ID No. B P I-01/11(47)2014]. (SCI IF: 1.02; Tier: Q2; H-Index: 25).	93
78	Lee ZY, Chuan JYF, Lim MQ, Koh ZX, Wong WHY, Ng TKW. Influence of rice and added sugar intakes on fasting plasma glucose and triacylglycerol levels amongst a population sample of Malaysian adults. <i>IeJSME</i> , 2015; (in press). (MyCite IF: 0.023).	94
79	Liew SC, Sidhu J, Barua A. The relationship between learning preferences (styles and approaches) and learning outcomes among pre-clinical undergraduate medical students. <i>BMC Medical Education</i> , 2015; 15: 44 [IMU Internal Grant: IMU 285/2013]. (IF: 1.41; SCI IF: 1.651; H-Index: 29; Tier: Q1).	95

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80	Liew SC, Sow CF, Sidhu J, Nadarajah VD. The near-peer tutoring programme: Embracing the ‘doctors-to-teach’ philosophy – A comparison of the effects of participation between the senior and junior near-peer tutors. <i>Medical Education Online</i> , 2015; 20: 27959. DOI: <a href="http://dx.doi.org/10.3402/meo.v20.27959">http://dx.doi.org/10.3402/meo.v20.27959</a> . (ISI IF: 0.833; SCI IF: 0.902; H-Index: 10; Tier: Q2). [IMU Internal Grant: IMU 281/2013].	96
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Abagiu AO, Cavar Z, Dannon P, George P, Habrat B, Kastelic A, Mahomedy Z, Popov P, Sarasvita R, Utami DS. Outcomes from the International Survey Informing Greater Insights in Opioid Dependence Treatment (INSIGHT) project. *Drugs Education Prevention & Policy*, 2015; Early Online: 1–11. (IF: NA).

## **Outcomes from the International Survey Informing Greater Insights in Opioid Dependence Treatment (INSIGHT) project.**

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### **Abstract**

**Aims:** The International Survey Informing Greater Insights in Opioid Dependence Treatment (INSIGHT) study evaluated the implementation of opioid dependence treatment across different countries to assess treatment delivery, quality of care and outcomes.

**Methods:** A questionnaire based survey was used to gather data in nine countries across Central and Eastern Europe, South Africa and South East Asia, from patients with opioid dependence receiving medication assisted treatment (MAT), healthcare professionals (HCPs) who cared for opioid dependent patients and opioid users not receiving MAT.

**Findings:** There was substantial variation between countries, but overall results suggest that several aspects of MAT can be improved, such as access to treatment (conditions to start or remain in treatment), quality of care (availability/awareness of treatment options and appropriate medication dosing) and treatment outcomes (on top use, misuse and diversion).

**Conclusions:** This analysis highlights key priorities that should improve the quality of opioid dependence care and access to treatment. These priorities include: acknowledging opioid dependence as a chronic medical condition requiring long term treatment; recognition by policy makers of the cost effectiveness of treatment; making available, to those who want them, psychosocial interventions and educating HCPs to prescribe the safest, least divertible forms of medications available at optimal doses in order to reduce opioid use, misuse and diversion.

**Keywords:** International survey, medication assisted treatment, opioid dependence treatment, outcomes, patients, physicians, quality of care, treatment access.

Abdulelah J, Syed Sulaiman SA, Hassali MA, Blebil AQ, Awaisu A, Bredle JM. Development and psychometric properties of a tuberculosis-specific multidimensional health-related quality-of-life measure for patients with pulmonary tuberculosis. *Value in Health Regional Issues*, 2015; 6C: 53-59. [Universiti Sains Malaysia, Research University, Postgraduate Research Grant Scheme (USM-RU-PRGS; grant no. 1001/PFARMASI/845040)]. (SCI IF: 0.564; H-Index: 2; Tier: Q3).

## **Development and psychometric properties of a tuberculosis-specific multidimensional health-related quality-of-life measure for patients with pulmonary tuberculosis.**

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### **Abstract**

**Background:** Various generic instruments exist to assess health-related quality of life (HRQOL) in patients with tuberculosis (TB), but a psychometrically sound disease-specific instrument is lacking.

**Objectives:** The present study aimed to develop and psychometrically validate a multidimensional TB-specific HRQOL instrument relevant to the value of patients with pulmonary TB in Iraq with an eye toward cross-cultural application.

**Methods:** The core general HRQOL questionnaire is composed of the Functional Assessment of Cancer Therapy-General items. A modular approach was followed for the development of the Functional Assessment of Chronic Illness Therapy-Tuberculosis (FACIT-TB) questionnaire in which asset of items assessing quality-of-life (QOL) issues not sufficiently covered by the core Functional Assessment of Cancer Therapy – General items, but considered to be relevant to the target population, was added. Moreover, principal-component analysis was used to determine the new sub scale structure of the questionnaire.

**Results:** In addition to the 27 items of the core questionnaire, a set of 20 items referring to disease symptoms related to the site of infection, adverse effects, and additional QOL dimensions such as fatigue, social stigma, and economic burden of the illness was included. Factor analysis demonstrated that the FACIT-TB construct comprised five domains.

**Conclusions:** A rigorous method was applied in the development of the FACIT-TB measure to fully understand the impact of TB on patients' QOL. The instrument is psychometrically sound and portrays multiple important dimensions of HRQOL. FACIT-TB is relatively brief, is easy to administer and score, and is appropriate for use in clinical trials and practice.

**Keywords:** disease-specific instrument, FACT-G, health-related quality of life, pulmonary tuberculosis, social stigma.

Abdul-Majeed S, Mohamed N, Soelaiman IM. The use of delta-tocotrienol and lovastatin for anti-osteoporotic therapy. *Life Sciences*, 2014; S0024-3205: 14; 00975-8. (SCI IF: 2.403; H-Index: 119; Tier: Q1).

## **The use of delta-tocotrienol and lovastatin for anti-osteoporotic therapy.**

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<sup>2</sup>Department of Pharmacology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Hospital UKM, Jalan Ya'acob Latif, Bandar Tun Razak, Cheras, 56000 Kuala Lumpur, Malaysia

### **Abstract**

**Aims:** Statins are competitive inhibitors of HMGCoA reductase and are commonly used as antihypercholesterolemic agents. Experimental studies clearly demonstrate the beneficial effects of statins on bone. Tocotrienols have also been shown to have anti-osteoporotic effects on the skeletal system. This study was conducted to observe the effect of a combination of delta-tocotrienol and lovastatin on structural bone histomorphometry and bone biomechanical strength in a postmenopausal rat model at clinically tolerable doses, and to compare it with the effect of delta-tocotrienol or lovastatin.

**Main methods:** Forty-eight female Sprague Dawley rats were randomly divided into six groups: baseline control; sham-operated control; ovariectomised control; ovariectomised + 11 mg/kg lovastatin; ovariectomised + 60 mg/kg delta-tocotrienol and ovariectomised + 60 mg/kg delta-tocotrienol + 11 mg/kg lovastatin. These treatments were given via oral gavage daily for eight weeks. After sacrificing the rats, the left and right femurs were dissected and processed for bone histomorphometric analysis and a bone biomechanical test, respectively.

**Key findings:** Delta-tocotrienol in combination with lovastatin significantly improved the trabecular volume, trabecular number, trabecular thickness and trabecular separation; and it significantly increased bone strength in oestrogen-deficient rats. Delta-tocotrienol alone enhanced bone formation and maintained bone strength in ovariectomised rats. Delta-tocotrienol plus lovastatin treatment promoted better trabecular volume and trabecular number and received higher load than delta-tocotrienol alone. Lovastatin alone was not effective.

**Significance:** Thus, the combination of delta-tocotrienol and lovastatin has the potential to be used for antiosteoporotic therapy in postmenopausal women.

**Keywords:** Statins, HMGCoA reductase, Tocotrienols, Lovastatin, Ovariectomised, Bone histomorphometry, Bone strength, Biomechanical test, Trabecular, Osteoporosis, Postmenopausal women.

Agarwal P, Aqil MD, Agarwal R. Aqueous humor TGF- $\beta$ 2 levels in patients with open-angle glaucoma: A meta-analysis. *Molecular Vision*, 2015; 21: 612-620. (SCI IF: 2.495; H-Index: 59; Tier: Q1).

## Aqueous humor TGF- $\beta$ 2 levels in patients with open-angle glaucoma: A meta-analysis.

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### Abstract

**Introduction:** Elevated intraocular pressure (IOP) in glaucomatous eyes is often due to increased resistance to aqueous outflow. Previous studies have shown that increased extracellular material deposition in outflow pathways leads to increased resistance to aqueous outflow, and transforming growth factor (TGF)- $\beta$  seems to play a role in the deposition of extracellular material. TGF- $\beta$ 2 is the predominant isoform in ocular tissue. Hence, comparison of the aqueous humor TGF- $\beta$ 2 level between patients with open-angle glaucoma (OAG) and controls would provide direct evidence for the role of TGF- $\beta$ 2 in the etiology of OAG. Hence, we performed this meta-analysis to develop an accurate estimate of the changes in aqueous humor TGF- $\beta$ 2 levels among OAG patients.

**Methods:** We undertook the meta-analysis of data from all available studies that had a case-control design and investigated the aqueous humor levels of TGF- $\beta$ 2 (total, active, or both) in OAG patients. OAG included primary OAG (POAG), secondary glaucoma, pseudoexfoliation syndrome, and exfoliation glaucoma (EXG).

**Results:** We selected a total of eight studies that measured TGF- $\beta$ 2 levels in the aqueous humor of glaucomatous eyes. The studies included in this meta-analysis clearly demonstrated that in OAG eyes, total TGF- $\beta$ 2 levels are significantly elevated, whereas in POAG eyes, both the total and active TGF- $\beta$ 2 levels are significantly higher than in controls.

**Conclusions:** The analysis of pooled data showed that aqueous humor TGF- $\beta$ 2 levels are elevated in patients with OAG and POAG.

Ahmad SM, Aznal SS, Tham SW. Prevalence of overactive bladder syndrome (OABS) among women with gynaecological problems and its risk factors in a tertiary hospital, Negeri Sembilan, Malaysia: Implication for primary healthcare providers. *Malaysian Family Physician*, 2015; 10(2): 2-8. (SCI IF: 0.122; H-Index: 6; Tier: Q4).

## **Prevalence of overactive bladder syndrome (OABS) among women with gynaecological problems and its risk factors in a tertiary hospital, Negeri Sembilan, Malaysia: Implication for primary healthcare providers.**

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<sup>3</sup>Department of Obstetrics and Gynaecology, Hospital Besar Melaka, Malaysia

### **Abstract**

**Objective:** The objective of this paper was to determine the prevalence of overactive bladder syndrome (OABS) and its risk factors among patients with other gynaecological problems.

**Methods:** This study was conducted on women aged more than 18 years who attended the gynaecology clinic for various diagnoses other than urinary problems at a tertiary hospital in Negeri Sembilan, Malaysia, for a period of 6 months. Data on patient's profile, symptoms and risk factors for overactive bladder (OAB) were prospectively collected using a structured questionnaire adapted from ICIQ (international consultation on incontinence questionnaire). Exclusion criteria included patients with confirmed diagnosis of stress incontinence or OAB, neurological impairment, gynaecological malignancy and those with a previous history of pelvic radiation. Chi-square test and logistic regression test were used in the statistical analysis. We presented the odds ratio (OR) and 95% confidence interval for each of the OAB symptoms with p-value of 0.05.

**Results:** The prevalence of OAB among the patients (n = 573) in this study was 19.1%. History of giving births to macrosomic babies and presence of utero-vaginal prolapse (UVP) were shown to be significantly associated with OAB in the multivariate analysis. Other factors were advanced age, high parity and menopausal for more than 5 years. More than half of the patients with the symptoms of OAB did not seek treatment, as they did not think it is necessary.

**Conclusion:** It is found that the prevalence of OAB is similar with many other studies conducted elsewhere. It was found to be multifactorial, but was highly significantly related with the presence of UVP, especially cystocoele and history of giving births to macrosomic babies.

**Keywords:** Overactive bladder, urgency, urinary incontinence, prevalence, risk factors.

Ahmadi K, Soyiri IN. Vaping shadows tobacco control: Imperatives for Malaysia. *Journal of Smoking Cessation*, 2015; (Accepted on 21st May 2015). (SCI IF: 0.459; H-Index: 3; Tier: Q3).

## **Vaping shadows tobacco control: Imperatives for Malaysia.**

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### **Abstract**

Electronic cigarettes (e-cigarettes) have been the subject of numerous debates in the literature. (Bullen et al., 2013; Cressey, 2014; the Lancet, 2013) So much discussion has been on it this year alone to the extent that the word vape, which means ‘to inhale and exhale the vapour produced by an e-cigarette or similar device’, has become the Oxford Dictionaries Word of the year. E-cigarettes have gained popularity amongst the youth who are smokers and want to quit as well as among children and adult non-smokers who fancy it. (Centers for Disease Control and Prevention, 2013; Dawkins, Turner, Roberts & Soar, 2013; Emery, Vera, Huang & Szczypka, 2014; News & Angeles, n.d.; Serrie, 2014; US Drug and Food Administration, 2014) Even in rural communities in middle- and low-income countries, their availability in shopping centres and through multilevel marketing schemes is common (I.N.S., unpublished observation/data).

Ahmed SI, Sulaiman SAS, Hassali MA, Shan LH, Hasan SS, Christopher LKC. Factors associated with poor CD4 and viral load control in patients with HIV/AIDS. *Journal of Medical Virology*, 2015; DOI: 10.1002/jmv.24389. (ISI IF: 2.347; SCI IF: 2.321; H-Index: 93; Tier: Q2).

## **Factors associated with poor CD4 and viral load control in patients with HIV/AIDS.**

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### **Abstract**

**Background:** Suboptimal viral suppression and CD4 response to antiretroviral treatment (HAART) is known to cause poor outcomes with the increase cost of treatment. We aimed to assess factors associated with such control among HIV/AIDS patients in Malaysia.

**Methods:** Four hundred and six HIV/AIDS patients, using Antiretroviral Therapy (ART) for at least the past three months, treated as outpatients at medication therapy adherence clinics (MTAC) were recruited. CD4 cell counts, viral load readings along with covariants such as sociodemographic factors, adverse drug reactions, comorbidities and medication record were obtained. Statistical Package for Social Sciences (SPSS®) version 18 and STATA IC® version 12 were used for data analysis.

**Results:** CD4 counts were found highest among those within the age category 41–50 years ( $390.43 \pm 272.28$ ), female ( $402.64 \pm 276.14$ ), other ethnicities ( $400.20 \pm 278.04$ ) and participants with no formal education ( $414.87 \pm 290.90$ ). Patients experiencing adverse effects had a 2.28 (95% CI: 1.25–4.18) fold greater risk of poor CD4 control, while patients with comorbidities had 2.46 (95% CI: 1.02–5.91) fold greater risk of mild viral suppression.

**Conclusion:** Adverse drug reactions, comorbidities were found to be significantly associated with poor immunological and virological outcomes in HIV/AIDS patients. However, a comprehensive evaluation is needed to better understand other confounders.

**Keywords:** HIV & AIDS; CD4 outcomes; viral suppression; factors associated; antiretroviral therapy.

Ahmed SI, Sulaiman SAS, Hassali MA, Thiruchelvam K, Hasan SS, Christopher LKC. Beliefs and practices of complementary and alternative (CAM) medicine among HIV/AIDS patients: A qualitative exploration. *European Journal of Integrative Medicine*, 2015; doi: 10.1016/j.eujim.2015.09.135. (ISI IF: 0.777; SCI IF: 0.983; H-Index: 10; Tier: Q2).

## **Beliefs and practices of complementary and alternative (CAM) medicine among HIV/AIDS patients: A qualitative exploration.**

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### **Abstract**

**Introduction:** Complementary and alternative medicine (CAM) is often used within the sphere of chronic disease management. Exploring the beliefs and practices of CAM use among People Living with HIV/AIDS (PLWHA) could be vital, since some of these therapies may adversely affect the outcomes of the conventional HIV treatment.

**Methods:** A phenomenological methodology was adopted. In depth patient interviews were performed with Malaysian patients over the age of 18 diagnosed with HIV/AIDS using a semi structured topic guide. Prior to each interview both written and verbal consents were taken. Saturation was reached after the 13th interview, with no further newly emerging information. All interviews were audio-recorded and subjected to a thematic content analysis framework.

**Results:** Beliefs in the effectiveness of CAM, types of CAM and reasons for CAM use emerged from the data as themes. A majority of the participants had a strong faith in the effectiveness and safety of CAM due to their natural origin. Perceived immune boosting effects, devoid of any toxicities and strong cultural influences were found vital driving forces towards CAM use. Remarkably, participants were generally of the view that CAM can always be used either with conventional HIV medicines or until one's CD4 cell counts drop significantly.

**Conclusions:** Despite the possible underlying adherence and therapeutic challenges towards taking ARTs; CAM use in contemporary HIV-care may provide a proactive means of engaging PLWHA, and generate self-care practises that promote positive health behaviours, including proper use of ARTs. Therefore, patient-healthcare provider communications are critical.

**Keywords:** HIV/AIDS, Qualitative exploration, Complementary and alternative medicine, Beliefs and practices.

Al-Abed A-AA, Sutan R, Al-Dubai SA, Ibrahim Y, Aljunid SM. Factors associated with fall injury among children under 5 years old In Yemen. *Malaysian Journal of Public Health Medicine*, 2014; 14 (1): 101-110. (SCI IF: 0.188; H-Index: 1; Tier: Q4).

## **Factors associated with fall injury among children under 5 years old In Yemen.**

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### **Abstract**

Falls are the most common injury causing death or long term disability particularly among children. This study aimed to identify the risk factors of the unintentional injuries due to falls in children aged less than five years in Yemen. This cross sectional study enrolled a total of 439 children under five years old from the emergency department of 6 hospitals in Sana'a city. Multistage sampling was used to select six hospitals from public and private sectors in Sana'a city. Face to face interviews were conducted by using a structured questionnaire. Simple logistic regression and multiple logistic regression were used in the analysis. The prevalence of falls among children under five years old was 21.2%. In the multivariate analysis, factors associated with falls among children were young mother ( $aOR= 0.9$ , 95% CI 0.81-0.91), working of mother ( $aOR= 4.5$  95% CI 2.40-7.65), frequent family social gatherings ( $aOR= 2.7$ , 95% CI 1.54-4.61), number of children at home ( $aOR= 2.6$ , 95% CI 1.43-4.64), chewing khat by father ( $aOR= 2.4$ , 95% CI 1.38-4.10), presence of staircase in the house ( $aOR= 2.1$ , 95% CI 1.24-3.70), number of rooms at home ( $aOR= 2.2$ , 95% CI 1.17-3.99) and disabled children ( $aOR= 3.3$ , 95% CI 1.20-9.27). In the study, socio-economic and cultural factors such as family gathering and chewing khat were associated with home fall injury among children under 5 years old in Yemen. Health promotion program should take place to reduce the occurrence of fall injury.

**Keywords:** Child health, falls, family, home, injury, Yemeni children.

Amal R Nimir, Sami A Radman, Mustafa A Mahdi, Ahmed M Saliem. Knowledge and practice of breast self-examination among students in a private higher learning institution in Malaysia. *Malaysian Journal of Public Health Medicine*, 2014; 14(3): 47-53. (SCI IF: 0.188; H-Index: 1; Tier: Q4).

## **Knowledge and practice of breast self-examination among students in a private higher learning institution in Malaysia.**

Amal R. Nimir<sup>1</sup>, Sami A. R. Al-Dubai<sup>2</sup>, Mustafa A. Alshagga<sup>3</sup>, Ahmed M. Saliem<sup>4</sup>.

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### **Abstract**

Breast cancer is one of the most frequently encountered malignancies among young females in Malaysia, which accounts for 30.4% of newly diagnosed cancers. All women at or above the age of 20 are considered at risk of developing breast cancer. This is a cross-sectional study. The study was conducted in a private medical university in Malaysia during year 2012. Two hundred students were recruited in this study using universal sampling. Data collection was done using a self-administration questionnaire. Chi-square test was used to assess the association between the practice of breast self-examination and socio-demographic variables. Only 19.5% of the study sample has sufficient knowledge about BSE which is acquired mostly from local media. Having a family history of malignancy other than breast cancer seems to be the only significant variable associated with knowledge about BSE ( $P=0.002$ ). Other variables such as demographic data, menstrual history and social history were also tested, but found to be not significant. Frequent community-based awareness programs are needed so that all women can know and practice BSE, which in turn helps to alert the women to any abnormal changes in the breasts so that they will be able to seek medical advice immediately.

Ambu S. Floods – The consequence of human intrusion into nature. *IeJSME*, 2015; 9(1): 1-2. (MyCite IF: 0.038).

## **Floods – The consequence of human intrusion into nature.**

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### **Abstract**

Flooding in Malaysia has become a common occurrence. There are frequent flash floods due to sudden heavy downpour that brings about health consequences due to contaminated water supply, poor sanitation and also flood related accidents. The Northeast monsoon season brings floods to many parts of peninsular Malaysia especially the eastern states of Kelantan, Terengganu and Pahang during the months of November to March. This annual occurrence of floods affects mainly the disadvantaged population and as such adequate funding and appropriate planning are required in the country's planning process to alleviate the resulting social and health problems. However measures implemented thus far seem to be temporary rather than permanent as these problems keep recurring year after year. It is time that we pay serious attention to the causes of these floods by asking ourselves where and why they are occurring, and whether anything can be done about it. These are questions that need immediate answers. When a disaster strikes there are many people on the scene, but after a period of 1, 2 or 3 months the enthusiasm dies down, the issue is forgotten until the next episode occurs. This is a common phenomenon around the globe. People have taken nature for granted; exploitation is without reason or control. It is a rape of nature beyond compromise. The human race has to wake up and put appropriate measures in place to overcome the impending catastrophic consequences. Food safety is affected, vector-breeding increases due to habitat changes, quality of water is compromised due to infra-structure destruction and all these lead to increased incidence of malnourishment, water- and vector-borne diseases. People are vulnerable to changes in the climate due to many factors, some of which can be social, economic or political. Floods affect impoverished populations because they live in overpopulated areas with compromised environmental conditions. All these conditions have a significant impact on the health of the population. To overcome this we need to understand the factors responsible for it and address these issues in the Malaysian 5-year development plans. It is a continuous process and not a one-off issue. We should adopt a responsive approach with concrete steps rather than being reactive only when the flooding takes place.

Currently all blame is placed on climate change but who is responsible for this? We with much humility must accept this blame and take upon ourselves to put the remedial process in place. We know that extreme weather conditions due to climate change are a main contributor to flooding in many parts of the world. Globalisation has affected all of us for the better and equally for the worse as well. The multifactorial changes brought about by carbon dioxide emissions, increases in temperature and sea-level, changes in precipitation, wind and wave patterns have a direct or indirect impact on human well-being. As we see today children are the most affected among the general population. A report by UNICEF identifies the dangers faced by children due to extreme weather conditions.

Remedial actions can be initiated by man or by nature. Nature has the ability to manage the environment against the onslaught of man. It is vulnerable yet it is able to adapt itself to the vagaries of development. The natural disasters we see today can be considered as the remedial measures taken by nature to correct human intrusion into the environment.

Storms, floods and droughts seen today are due to the effect of El Nino. These warm currents are seen to affect the patterns on the monsoons in our region, giving rise to natural disasters. Vectors of disease such as malaria, dengue, Australian encephalitis and the Rift Valley Fever are seen to increase due to these changes. Floods can potentially increase the transmission of communicable diseases such as water-borne and vector-borne diseases. The water-borne diseases can be typhoid fever, cholera, leptospirosis and hepatitis A and the vector-borne diseases can be malaria, dengue and dengue haemorrhagic fever, yellow fever, and West Nile fever. In most outbreaks of water-borne diseases, population displacement has been identified as the cause. The contamination of potable water supply by floods is a major risk factor as the displaced population resorts to use of other untreated sources of water. There can also be other diseases such as wound infections, dermatitis, conjunctivitis, ear, nose and throat infections due to contact with polluted water. However an epidemic-prone infection that Malaysians need to be aware of is leptospirosis as it is on the increase. Infected rodents discharge large amounts of the organisms into the environment which is transmitted to humans through contact with the skin and mucous membrane. Outbreaks of leptospirosis have been known to occur in Brazil (1983, 1988 and 1996), in Nicaragua (1995), Krasnodar region, Russian Federation (1997), Santa Fe, USA (1998) Orissa, India (1999) and Thailand (2000). In Malaysia the true extent of the disease is not known because there is poor coordination of the research between the veterinary and medical sectors. With better coordination and improved diagnostics, the true status of the disease can be established. Malaria outbreaks have been recorded in Costa Rica (1991), Dominican Republic (2004) and West Nile Fever in Romania (1996-1997), Czech Republic (1997), Italy (1998). Malaria control in Malaysia has been very good and in 2012 there were only 4725 cases recorded. However with the emergence of the zoonotic form of malaria caused by *Plasmodium knowlesi*, we have to be vigilant as environmental changes can impact on vector breeding resulting in increase of the disease leading to a fatal outcome.

Malaysia experienced one of worst floods in history at the end of 2014, in which about 200,000 people were affected with a death toll of 21. The states that were affected by these floods were Kelantan, Terengganu, Pahang, Perak and Sabah. At the end of 2014 there was a significant increase in rainfall and the perigean tide (due to the influence of the moon) which blocked the flow of water into the sea resulted in the flooding. So can we speculate that together with these reasons environmental degradation also contributed to this disaster? In Sabah and Sarawak in January 2015 some 3,000 people were displaced due to floods and the cause was attributed to deforestation. There is much work to be done to find the right answer. The blame game must stop and the responsible agencies must initiate cross-sectorial collaboration. Remedial actions must be sustainable. Innovative and progressive reforms must be incorporated into the building sector especially in flood prone areas. The federal agencies need to look at their flood mitigation policies, revise redundant approaches, undertake drastic measures to curb environmental exploitation and be prudent in expenditure and take serious consideration of environmental impact assessment reports.

Amirthalingam S, Kok SY, Lim TC, Ng YM. Topical antibacterials and global challenges on resistance development. *Tropical Journal of Pharmaceutical Research*, 2015; 14(5): 919-924. (ISI IF: 0.589; SCI IF: 0.713; H-Index: 16; Tier: Q3).

## **Topical antibacterials and global challenges on resistance development.**

Sathish Amirthalingam<sup>1</sup>, Kok Shin Yi<sup>2</sup>, Lim Tze Ching<sup>2</sup> and Ng Yoke Mun<sup>2</sup>.

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### **Abstract**

**Purpose:** The skin acts as the first line of defence against the invasion of microorganisms. Damage to the skin such as abrasion, bruises and trauma will expose underlying tissue to bacterial infection. Minor skin infections can be easily treated with topical antibacterial medication that is available over the counter or by prescription. On the other hand, serious bacterial skin infections can be life-threatening and may require complex interventions such as medical or surgical methods to cure the disease. The treatments given have to be assessed according to the presentation, aetiology, chronicity of the wound (depth and size) and/or skin lesions. For skin bacterial infection, topical route of administration is preferred over systemic administration due to the delivery of a higher concentration of medication for the former into the desired area. It is also less likely to cause systemic side effects, toxicity, and bacterial resistance. There is ongoing controversy and debate regarding the likelihood of developing bacterial resistance with the usage of topical antibiotics as an antibacterial. This could be due to inappropriate antibiotic use resulting from self-medication, over the counter availability, prescribing on demand and a lack of regulatory control.

**Keywords:** Topical antibacterial, Bacterial resistance, Self-medication, Inappropriate antibiotic use, Dispensing.

Appukutty M, Ramasamy K, Rajan S, Vellasamy S, Ramasamy R, Radhakrishnan AK. Effect of orally administered soy milk fermented with *Lactobacillus plantarum* LAB12 and physical exercise on murine immune responses. *Beneficial Microbes*, 2015; 17: 491-496. (ISI IF: 2.614; SCI IF: 2.443; H-Index: 14; Tier: Q2). [IMU R038-2008].

### **Effect of orally administered soy milk fermented with *Lactobacillus plantarum* LAB12 and physical exercise on murine immune responses.**

Appukutty M<sup>1</sup>, Ramasamy K<sup>2</sup>, Rajan S<sup>3</sup>, Vellasamy S<sup>4</sup>, Ramasamy R<sup>5</sup>, Radhakrishnan AK<sup>6</sup>.

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<sup>6</sup>Faculty of Medicine and Health, International Medical University, Jalan Jalil Perkasa 19, 57000 Kuala Lumpur.

#### **Abstract**

Probiotics are live microorganisms that confer health benefits through the gastrointestinal microbiota. This nutritional supplement may benefit athletes who undergo rigorous training by maintaining their gastrointestinal functions and overall health. In this study the influence of moderate physical exercise using a graded treadmill exercise, alone or in combination with the consumption of a soy product fermented with *Lactobacillus plantarum* LAB12 (LAB12), on tumour necrosis factor alpha (TNF- $\alpha$ ) responses was investigated in a murine model. Male BALB/c mice were randomly divided into four groups of six mice each (control, exercise alone, LAB12 and LAB12 + exercise). Mice treated with the potential probiotic LAB12 were orally gavaged for 42 days. At autopsy, blood and spleen from the animals were collected. The splenocytes were cultured in the presence of a mitogen, concanavalin A (Con A). The amount of TNF- $\alpha$  produced by the Con A-stimulated splenocytes was quantified using ELISA, while their proliferation was determined using the [<sup>3</sup>H]-thymidine incorporation method. This study shows that LAB12-supplemented and exercise-induced mice showed marked increase ( $P<0.05$ ) in cell proliferation compared to the control animals. TNF- $\alpha$  production was suppressed ( $P<0.05$ ) in the LAB12 group compared to the untreated mice. These results demonstrate that supplementation with LAB12 has immunomodulatory effects, under conditions of moderate physical exercise, which may have implications for human athletes. Further investigation in human trials is warranted to confirm and extrapolate these findings.

**Keywords:** probiotics, *Lactobacillus plantarum*, exercise, immunomodulation, TNF- $\alpha$ .

Arathi G, Venkateshbabu N, Deepthi M, Jayaleelashri J, Saranya V, Kandaswamy D. In-vitro antimicrobial efficacy of aqueous extract of Areca nut against *Enterococcus faecalis*. *Indian Journal of Research in Pharmacy and Biotechnology*, 2015; 3(2): 147. (IF: NA).

## **In-vitro antimicrobial efficacy of aqueous extract of Areca nut against *Enterococcus faecalis*.**

Dr. Arathi. G<sup>1</sup>, Dr. Venkateshbabu. N<sup>2</sup>, Dr. Deepthi. M<sup>3</sup>, Dr. Jayaleelashri. J<sup>4</sup>, Dr. Saranya.V<sup>5</sup>, Dr. Kandaswamy. D<sup>6</sup>.

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<sup>6</sup>Dean, Professor and Head, Department of Conservative Dentistry and Endodontics, Faculty of Dental Sciences, Sri Ramachandra University

### **Abstract**

**Background and Aim:** Successful root canal therapy relies on the combination of proper instrumentation and effective irrigation of the root canal system. The aim of the study was to evaluate out the antibacterial efficacy of areca nut extract and chlorhexidine against *E. faecalis*.

**Materials and methods:** Areca nut extract was prepared by extraction of 10g dry powdered areca nut with 250ml distilled water for 1 hour. The extract was filtered through a sintered glass funnel, freeze dried and frozen at -70°C. Antimicrobial activity of the areca nut extract was tested by using the agar diffusion and serial dilution method.

**Results:** The areca nut and CHX significantly inhibited the growth of *E. faecalis* at a dose dependent manner.

**Conclusion:** The areca nut showed potential antibacterial activity against *E. faecalis*, when compared to CHX.

**Keywords:** Agar Diffusion, Areca nut, Chlorhexidine, *E. faecalis*.

Ariffin F, Chin KL, Ng CJ, Miskan M, Lee VKM, Isa MR. Are medical students confident in taking a sexual history? An assessment on attitude and skills from an upper middle income country. *BMC Research Notes*, 2015; 8: 248. [IMU Internal Grant – IMU CT18\_2011 & UiTM FRGS Grant]. (SCI IF: 1.414; H-Index: 25; Tier: Q2).

## **Are medical students confident in taking a sexual history? An assessment on attitude and skills from an upper middle income country.**

Farnaza Ariffin<sup>1</sup>, Ken Lee Chin<sup>2</sup>, Chirk Jenn Ng<sup>3</sup>, Maizatullifah Miskan<sup>1</sup>, Verna Kar Mun Lee<sup>4</sup>, and Mohammad Rodi Isa<sup>5</sup>.

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### **Abstract**

**Background:** Sexual history training during undergraduate education is essential for preparing future doctors to handle patients' sexual health concerns. The purpose of this study was to assess the attitudes and perceptions of final-year medical students in Malaysia toward sexual history taking and the training they receive from their medical schools.

**Methods:** The study used a cross-sectional survey of 379 final-year medical students from three medical schools in Malaysia. Students were asked to rate their attitudes and perceptions regarding training on taking sexual histories using a newly developed questionnaire with good internal consistency (Cronbach's alpha = 0.73). Ethics approval was obtained from the relevant medical schools, and the statistical analysis was conducted using SPSS, Version 20.0.

**Results:** The mean age of participants was  $23.58 \pm 0.65$  SD. Participants reported high interest in sexual health and felt it was important for doctors to know how to take a sexual history (95%). Among the participants, only half felt comfortable in taking sexual histories from patients. The participants identified cultural and religious differences between the doctor and the patient as a potential barrier for discussing sexual health. Participants were aware of their own practice and ability, as well as their limitations, in taking sexual histories. Less than half (46%) felt that the training they received adequately prepared them to take sexual histories.

**Conclusions:** This study identified gaps in sexual health training among medical schools in Malaysia. The delivery of sexual health education program should incorporate confidence building and to make students feel comfortable to take sexual histories from patients. The barrier caused by differences in culture or religion between a doctor and a patient may be overcome through cross cultural and cultural competency training. This is important for multi-faith, multi-cultural societies such as Malaysia and other similar countries.

**Keywords:** Sexual history, Medical students, Undergraduate, Attitude, Perception, Skills, Training.

Ashwinder K, Kho MT, Chee PM, Lim WZ, Yap IKS, Choi SB, Yam WK. Targeting heat shock proteins 60 and 70 of *Toxoplasma gondii* as a potential drug target: In silico approach. *Interdisciplinary Sciences: Computational Life Sciences*, 2015; 1-14. [IMU Internal Grant – MBI01/2009(02)2011 and BMSCl01/2010(13)2012]. (SCI IF: 0.667; H-Index: 9; Tier: Q3).

## **Targeting heat shock proteins 60 and 70 of *Toxoplasma gondii* as a potential drug target: In silico approach.**

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### **Abstract**

Heat shock proteins (Hsps) 60 and 70 are postulated as a potential drug target for toxoplasmosis due to its importance in the developmental and survival of *Toxoplasma gondii* (*T. gondii*). As of today, there have been no reports on three-dimensional (3D) structure of Hsp60 and Hsp70 deposited in the Brookhaven Protein Data Bank. Hence, this study was conducted to predict 3D structures for Hsp60 and Hsp70 in *T. gondii* by homology modeling. Selection of the best predicted model was done based on multiple scoring functions. In addition, virtual screening was performed to short-list chemical compounds from the National Cancer Institute (NCI) Diversity Set III in search of potential inhibitor against Hsp60 and Hsp70 in *T. gondii*. Prior to virtual screening, binding sites of Hsp60 and Hsp70 were predicted using various servers and were used as the center in docking studies. The Hsps were docked against known natural ligands to validate the method used in estimating free energy of binding (FEB) and possible interactions between ligand and protein. Virtual screening was performed with a total of 1560 compounds from the NCI Diversity Set III. The compounds were ranked subsequently according to their FEB. Molecular basis of interactions of the top five ranked compounds was investigated using Ligplot?. The major interactions exhibited were hydrogen bonding and hydrophobic interactions in binding to Hsp60 and Hsp70. The results obtained provided information and guidelines for the development of inhibitors for Hsp60 and Hsp70 in *T. gondii*.

**Keywords:** Toxoplasmosis, Heat shock protein, Homology modelling, Molecular docking, Virtual screening.

Aung HH, Shahida S, Lwin SS, Azlin SY. Ultrasonographic study on the persistent median artery of the forearm in Malaysian adults. *Surgical and Radiologic Anatomy*, 2015; 37: 725. [IIUM EDW B11-059-0537]. (ISI IF: 1.047; SCI IF: 0.964; H-Index: 39; Tier: Q2).

## **Ultrasonographic study on the persistent median artery of the forearm in Malaysian adults.**

Htar Htar Aung<sup>1</sup>, Shahida Saharudin<sup>2</sup>, San San Lwin<sup>2</sup>, Azlin Sa'at Yusof<sup>3</sup>.

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### **Abstract**

The expression of the persistent median artery (PMA) has been implicated in a lot of clinical disorders. Ultrasonography currently expands the role of the non-invasive vascular laboratory. In Malaysia no study has been done on the persistent median artery in vivo.

**Purpose:** To determine the incidence of the persistent median artery of the forearm by using the Doppler ultrasonography.

**Methods:** Four hundreds subjects (staff and students of International Islamic University Malaysia) were examined with Logiq P5 General Electric Ultrasound machine using 12L-RS linear probe. Data analysis was carried out with SPSS 19.

**Results:** Persistent median artery was found in 18 subjects (4.5%), more common in male (61%) and on the left forearm (57%), occurring unilaterally (83%) more often than bilaterally. However, it wasn't statistically significant. The two patterns, the antebrachial (52%) and the palmar (48%) were found. The origin was directly from the ulnar artery (81%), common interosseous artery (14%) and the brachioulnar artery (5%). 43% of PMA coursed laterally while 29% medially and 14% anteriorly to the median nerve. In the antebrachial type, it terminated in the middle third (73%) or distal third (27%) of the forearm. In four cases, PMA was associated with the brachioulnar artery, superficial brachioulnar artery, brachioradial artery and the aberrant radial artery.

**Conclusion:** This study confirms that the persistent median artery of the forearm is not uncommon. The microsurgical techniques for reconstruction of upper extremity could be fulfilled by thorough knowledge of the vascular patterns and structural variations between individuals in different population.

Bai MK, Radhakrishnan AK, Haleagrahara N. Protective mechanisms of flavonoids in Parkinson's disease. *Oxidative Medicine and Cellular Longevity*, 2015; Article ID: 314560: 1-14. (ISI IF: 3.363; SCI IF: 3.222; H-Index: 27; Tier: Q2). [IMU 230-2011].

## **Protective mechanisms of flavonoids in Parkinson's disease.**

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<sup>2</sup>Discipline of Biomedicine, College of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville, QLD 4811, Australia

### **Abstract**

Parkinson's disease is a chronic, debilitating neurodegenerative movement disorder characterized by progressive degeneration of dopaminergic neurons in the substantia nigra pars compacta region in human midbrain. To date, oxidative stress is the well accepted concept in the etiology and progression of Parkinson's disease. Hence, the therapeutic agent is targeted against suppressing and alleviating the oxidative stress-induced cellular damage. Within the past decades, an explosion of research discoveries has reported on the protective mechanisms of flavonoids, which are plant-based polyphenols, in the treatment of neurodegenerative disease using both in vitro and in vivo models. In this paper, we have reviewed the literature on the neuroprotective mechanisms of flavonoids in protecting the dopaminergic neurons hence reducing the symptoms of this movement disorder. The mechanism reviewed includes effect of flavonoids in activation of endogenous antioxidant enzymes, suppressing the lipid peroxidation, inhibition of inflammatory mediators, flavonoids as a mitochondrial target therapy, and modulation of gene expression in neuronal cells.

Bhardwaj A, Nagandla K, Gupta ED, Saadon Bin I. Teaching and learning in workplace: Contemporary perspectives. *Education in Medicine Journal*, 2015; 7(3): e67-e72. (IF: NA).

## **Teaching and learning in workplace: Contemporary perspectives.**

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### **Abstract**

Workplace learning is essentially informal that is unstructured, unintended and opportunistic from educational view point. Recall of factual knowledge and applying skills is central in workplace so learning becomes meaningful and evidence based. To maximise their learning, the learners must take active participation in their own learning, set goals and march towards achieving these goals. The objective of the teacher at this juncture is obliging to the needs of the learners and of the patients. This review aims to address the teaching and learning theories that impact the workplace learning, factors influencing workplace based learning, identifying opportunities for learning to occur parallel with work and strategies that maximise successful workplace learning.

Castelino RL, Laxmana AR, Balan P, KA F, Kannepady S. Evaginated odontome on maxillary lateral incisor - A reverse and a rare presentation. *Gaziantep Medical Journal*, 2015; 21 (1): 59-61. (IF: NA).

## **Evaginated odontome on maxillary lateral incisor - A reverse and a rare presentation.**

Renita Lorina Castelino<sup>1</sup>, Anusha Rangare Laxmana<sup>2</sup>, Preethi Balan<sup>3</sup>, Fazil KA<sup>3</sup>, Sham Kannepady<sup>4</sup>.

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<sup>4</sup>School of dentistry, International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

Evaginated odontome or talon cusp is an uncommon dental anomaly with accessory cusp-like projection arising from the cingulum area of the maxillary or mandibular anterior teeth. This anomalous cusp resembles an eagle's talon and hence the name. It occurs in both the primary and the permanent dentition. The presence of talon cusp on the lingual surfaces of primary permanent teeth is considered to be pathognomonic, but the case reported here is an unusual case which is present in the facial aspect in a female patient. As per the existing literature only seven case reports of facial talon in permanent maxillary teeth have been reported.

**Keywords:** Talon, facial, eagle, evaginated.

Chan CW, Teng CL. Discordance between medication adherence and blood pressure control in Malaysian primary care: The problem of therapeutic inertia. *IeJSME*, 2015; (in press). (MyCite IF: 0.038).

## **Discordance between medication adherence and blood pressure control in primary care clinics in Negeri Sembilan, Malaysia: The problem of therapeutic inertia**

Chun Wai Chan<sup>1</sup>, Junyi Wang<sup>2</sup>, Joanne Johnny Bouniu<sup>3</sup>, Parampreet Singh<sup>4</sup>, Cheong Lieng Teng<sup>1</sup>.

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<sup>3</sup>Ministry of Health, Queen Elizabeth Hospital, Jalan Penampang, 88200 Kota Kinabalu, Sabah, MALAYSIA

<sup>4</sup>Ministry of Health, Hospital Selayang, Lebuhraya Selayang-Kepong, 68100 Batu Caves, Selangor Darul Ehsan, MALAYSIA

### **Abstract**

**Introduction:** Poor adherence to anti-hypertensive agents may be a major contributor for suboptimal blood pressure control among patients with hypertension. This study was conducted to assess the adherence to antihypertensive agents using Morisky Medication Adherence Scale (MMAS-8) among primary care patients, and to determine whether the blood pressure control is associated with the level of adherence.

**Methodology:** This cross-sectional study was conducted between June 2011 and August 2011. Adults with hypertension older or equal to aged 30 with or without diabetes were recruited from two public primary care clinics in Negeri Sembilan, Malaysia. Medication adherence was assessed using MMAS-8.

**Results:** Data from 231 patients were analysed, whereby 68% of them had good medication adherence but only 38.1% of the patients had their blood pressure under control. Statistical analysis failed to find correlation between adherence and blood pressure control. Twenty per cent of hypertensive subjects were on beta-blocker alone, and 37.1% of patients with either diabetes or proteinuria were not prescribed either angiotensin converting enzyme inhibitors (ACEI) or angiotensin receptor blocker (ARB). Above half the patients (51.5%) were on monotherapy.

**Conclusion:** Discordance between adherence to antihypertensive agents and hypertension control is clearly shown in this study, and the likely explanation for the discordance is therapeutic inertia.

**Keywords:** primary care, hypertension, therapeutic inertia, medication adherence.

Chan CW. Evaluation of digital clubbing. *Australian Family Physician*, 2015; 44(3): 113-116. (SCI IF: 0.732; H-Index: 25; Tier: Q2).

## **Evaluation of digital clubbing.**

Chun Wai Chan.

Department of Family Medicine, International Medical University, Malaysia.

### **Abstract**

A Malay man, aged 23 years, presented to his local general practitioner (GP) with a 1-week history of fever, sore throat and mild bilateral shoulder, elbow and knee pain without joint effusion. He did not have any other respiratory, gastrointestinal or cardiovascular symptoms. He had a past history of Dengue fever and was currently employed as a worker in a spectacle frame factory. He had a 3 pack-year smoking history. He did not use illicit drugs or consume alcohol.

He was haemodynamically stable and afebrile. His examination was unremarkable, apart from an injected pharynx and bilateral finger and toe clubbing. There was no sign of joint inflammation and he had a normal range of motion for all his joints. The patient had not noticed the digital clubbing. On further questioning, he had no risk factors for human immunodeficiency virus (HIV), hepatitis B or C viruses. A full blood count was done and the results were normal.

The patient came back for a follow-up 2 days later. All of his symptoms had resolved. After talking to his family, he realised that he was the only person in the family with digital clubbing.

**Keywords:** physical examination; hypertrophic osteoarthropathy; clubbing.

Chang WC, Than SN. Dietary sodium adherence and health beliefs among patients on haemodialysis. *Singapore Nursing Journal (SNA)*, 2015; in press. (IF: NA).

## **Dietary sodium adherence and health beliefs among patients on haemodialysis.**

Chang Woan Ching.

Nursing Division, School of Health Sciences, International Medical University (IMU).

### **Abstract**

Non-adherence to treatment plans is an important healthcare issue in end-stage renal disease (ESRD) patients on Haemodialysis (HD). The literature revealed a lack of studies measuring adherence with fluid and sodium restrictions from a Malaysian perspective. This study aims to measure adherence levels with dietary restrictions of patients with ESRD receiving HD in Malaysia, and to explore the relationship between adherence with dietary sodium restrictions and health beliefs in relation to following these restrictions. A convenience sample ( $n=212$ ) was engaged from three HD centres in Klang Valley where data were collected using structured interview questionnaires. A quantitative survey was employed using the Health Belief Model as a theoretical framework. The findings revealed that the majority of participants reported having moderate to high levels of adherence. Coefficient showed a significant positive relationship ( $p=0.000$ ,  $r=.467$ ) between health beliefs and overall adherence levels. This implied that an increase in the perceived benefits of following a sodium-restricted diet was associated with a greater adherence level. The perceived barriers identified in this study are essential to facilitating renal nurses' understanding of non-adherence among HD patients.

**Keywords:** End-stage renal disease (ESRD), Haemodialysis (HD), Adherence, Health Belief Model (HBM).

Chellappan DK, Ganasesen S, Batumalai S, Candasamy M, Krishnappa P, Dua K, Chellian J, Gupta G. The protective action of the aqueous extract of *Auricularia polytricha* in paracetamol induced hepatotoxicity in rats. *Recent Patents on Drug Delivery and Formulation*, 2015; Volume 9. DOI: 10.2174/1872211309666151030110015. (SCI IF: 0.949; H-Index: 21; Tier: Q2).

## **The protective action of the aqueous extract of *Auricularia polytricha* in paracetamol induced hepatotoxicity in rats.**

Dinesh Kumar Chellappan, Sivamalar Ganasesen, Shaminiswary Batumalai, Mayuren Candasamy, Purushotham Krishnappa, Kamal Dua, Jestin Chellian and Gaurav Gupta

School of Medicine and Public Health University of Newcastle, Newcastle, NSW 2308, Australia

### **Abstract**

Natural antioxidant products are increasingly being used to treat various pathological liver injuries considering the role of oxidative stress in their pathogenesis. *Auricularia polytricha* been put to use as food or medicine due to its antioxidant activity. The aim of the study was to evaluate the protective effect of the aqueous extract of the fruiting bodies of *A. polytricha* against paracetamol-induced liver toxicity in rats. Liver toxicity was induced in Sprague Dawley rats by oral administration of 2g/kg paracetamol on the 15th day after the administration of aqueous extract and silymarin 100 mg/kg. Aqueous extract of *A. polytricha* were administered orally at 250 and 500 mg/kg doses, daily for a period of 14 days. Aspartate aminotransferase (AST), Alanine transaminase (ALT) and Alkaline phosphatase (ALP), Lactate dehydrogenase (LDH), Total bilirubin (TB), Total protein (TP), Triglycerides (TG) and cholesterol were measured to assess the effect of the extract on paracetamol-induced hepatic damage. The study also included histopathological examination of liver sections to assess hepatoprotective activity. Paracetamol significantly ( $P<0.001$ ) increased the serum AST, ALT, ALP, LDH, TB, TG and cholesterol and decreased TP levels. Extract treatment significantly ( $P<0.001$  to  $P<0.05$ ) attenuated the paracetamol-induced increase in AST, ALT, ALP, LDH, TB, TG and cholesterol and increased the diminished TP in a dose dependent manner. The standard drug, silymarin produced significant ( $P<0.001$ ) decrease in AST, ALT, ALP, LDH, TB, TG and cholesterol and increase in TP. Histopathological examination of animals treated with paracetamol showed large areas of centrilobular necrosis with congestion and dilatation in both central and portal veins. These results indicate that the aqueous extract of *A. polytricha* has significant protective effect against paracetamol-induced liver toxicity in rats, due to its potent antioxidant activity.

Chen CL, Parolia A, Pau A, Celerino de Moraes Porto IC. Comparative evaluation of effectiveness of desensitizing agents in dentine tubule occlusion using scanning electron microscopy. *Australian Dental Journal*, 2015; 60: 65–72. doi: 10.1111/adj.12275. (ISI IF: 1.104; SCI IF: 1.23; H-Index: 42; Tier: Q1).

## **Comparative evaluation of effectiveness of desensitizing agents in dentine tubule occlusion using scanning electron microscopy.**

CL Chen<sup>1</sup>, A Parolia<sup>1</sup>, A Pau<sup>1</sup>, IC Celerino de Moraes Porto<sup>2</sup>.

<sup>1</sup>School of Dentistry, International Medical University, Bukit Jalil, Kuala Lumpur, Malaysia.

<sup>2</sup>Department of Restorative Dentistry, Federal University of Alagoas, Maceio, Alagoas, Brazil.

### **Abstract**

**Background:** Dentine hypersensitivity (DH) occurs on exposed dentine and is dependent on the patency of dentinal tubules. This study compared the effectiveness of red propolis extract (RPE), calcium sodium phosphosilicate (Novamin) and arginine-calcium carbonate (ACC) in occluding dentine tubules.

**Methods:** Eighty dentine discs from extracted human molars were randomly divided into four groups ( $n = 20$ ): Group 1 – RPE; Group 2 – Novamin; Group 3 – ACC; Group 4 – saline. The discs were etched with 37.5% phosphoric acid and treated with the test agents. Ten treated discs from each group were then exposed to 6% citric acid challenge. The extent of tubule occlusion was assessed using scanning electron microscopy (SEM). Three blinded assessors scored each SEM image on the degree of tubule occlusion. Differences in occlusion were tested using ANOVA and Tukey adjustment.

**Results:** Discs treated with ACC demonstrated more tubule occlusion, followed by RPE and Novamin, and were greater in statistical significance when compared to discs treated with saline. Following acid challenge, RPE treated discs maintained more occlusion, followed by ACC and Novamin.

**Conclusions:** All three agents demonstrated tubule occlusion. Although ACC showed more occlusion following treatment, RPE demonstrated a higher degree of occlusion following acid challenge.

**Keywords:** Arginine-calcium carbonate, calcium sodium phosphosilicate, dentine hypersensitivity, red propolis extract, scanning electron microscopy.

Chen JXJ, Lim PKC, Wong SF, Mak JW. Determination of the presence and levels of heavy metals and other elements in raw and commercial edible bird nests. *Malaysian Journal of Nutrition*, 2014; 20(3): 377-397. (SCI IF: 0.224; H-Index: 10; Tier: Q3).

## **Determination of the presence and levels of heavy metals and other elements in raw and commercial edible bird nests.**

Chen JXJ, Lim PKC, Wong SF, Mak JW.

School of Medicine, International Medical University, 57000 Kuala Lumpur, Malaysia.

### **Abstract**

**Introduction:** Heavy metals and other contaminants in food have been a concern to food industries, consumers and governing authorities. The purpose of this study was to determine the levels of heavy metals and other elements in edible bird nests (EBNs).

**Methods:** Raw and processed (commercial) EBNs were used in the study. Raw EBNs were collected directly from five house farms in Peninsular Malaysia – Kuala Sanglang (Kedah), Pantai Remis (Perak), Kluang (Johor), Kota Bharu (Kelantan), and Kajang (Selangor). Processed EBNs were purchased from five Chinese traditional medicinal shops located in Peninsular Malaysia. The levels of 32 elements were determined by inductively coupled plasma-mass spectrometry and findings of the study were compared to the maximum regulatory limits set by the Standards and Industrial Research Institute of Malaysia (SIRIM) for EBNs.

**Results:** Of the seven elements with maximum regulatory limits (As, Cd, Pb, Hg, Sn, Cu, Fe), one raw EBN was detected with mercury level of 70.180 ppb which was above the SIRIM permissible limit of 30 ppb. The levels of the other 25 elements with no maximum regulatory limits (Ca, Mg, Na, K, P, Co, Cr, Mn, Mo, Se, Zn, Ag, Ba, Be, Bi, B, Li, Ni, Sb, Sr, Ti, U, V, Al, Zr) were also determined.

**Conclusion:** The data obtained for the 25 elements with no permissible limits can serve as baseline data for further studies to establish their maximum regulatory limits.

**Keywords:** Edible bird nests, heavy metal contamination, inductively coupled plasma-mass spectrometry.

Chen JXJ, Wong SF, Lim PKC, Mak JW. Culture and molecular identification of fungal contaminants in edible bird nests. *Food Additives and Contaminants: Part A*, 2015; 00(00): 1–13. Doi: <http://dx.doi.org/10.1080/19440049.2015.1101494>. [BMedSc BMS I-01/2012(04)] (SCI IF: 1.833; H-Index: 33; Tier: Q1).

## Culture and molecular identification of fungal contaminants in edible bird nests.

Jennifer Xiao Jing Chen, Shew Fung Wong, Patricia Kim Chooi Lim & Joon Wah Mak.

School of Medical Sciences, International Medical University, Kuala Lumpur, Malaysia

### Abstract

Widespread food poisoning due to microbial contamination has been a major concern for the food industry, consumers and governing authorities. This study is designed to determine the levels of fungal contamination in edible bird nests (EBNs) using culture and molecular techniques. Raw EBNs were collected from five house farms, and commercial EBNs were purchased from five Chinese traditional medicine shops (companies A–E) in Peninsular Malaysia. The fungal contents in the raw and commercial EBNs, and boiled and unboiled EBNs were determined. Culturable fungi were isolated and identified. In this study, the use of these methods revealed that all EBNs had fungal colony-forming units (CFUs) that exceeded the limit set by Standards and Industrial Research Institute of Malaysia (SIRIM) for yeast and moulds in EBNs. There was a significant difference ( $p < 0.05$ ) in the number of types of fungi isolated from raw and commercial EBNs, but no significant difference in the reduction of the number of types of fungi after boiling the EBNs ( $p > 0.05$ ). The types of fungi isolated from the unboiled raw EBNs were mainly soil, plant and environmental fungi, while the types of fungi isolated from the boiled raw EBNs, unboiled and boiled commercial EBNs were mainly environmental fungi. *Aspergillus* sp., *Candida* sp., *Cladosporium* sp., *Neurospora* sp. and *Penicillium* sp. were the most common fungi isolated from the unboiled and boiled raw and commercial EBNs. Some of these fungi are mycotoxin producers and cause opportunistic infections in humans. Further studies to determine the mycotoxin levels and methods to prevent or remove these contaminations from EBNs for safe consumption are necessary. The establishment and implementation of stringent regulations for the standards of EBNs should be regularly updated and monitored to improve the quality of the EBNs and consumer safety.

**Keywords:** edible bird nest; fungi; contaminants; molecular techniques.

Cheng HP, Koh RY, Chye SM. Medicinal properties of *Strobilanthes crispus*: A Review. *BAOJ Pharmaceutical Sciences*, 2015; 1(2): 007. (IF: NA).

## **Medicinal properties of *Strobilanthes crispus*: A Review.**

Cheng HP<sup>1</sup>, Koh RY<sup>2</sup>, Chye SM<sup>2</sup>.

<sup>1</sup>School of Health Sciences, International Medical University, Bukit Jalil, 57000 Kuala Lumpur, Malaysia.

<sup>2</sup>Department of Human Biology, School of Medicine, International Medical University, 57000 Kuala Lumpur, Malaysia.

### **Abstract**

In spite of the breakthrough innovation in combinatorial chemistry and molecular modelling, natural products, especially medicinal plants remain one of the important sources from which pharmacologically active compounds are isolated, tested and evaluated in the discovery of new drugs, new leads and chemical entities in pharmaceutical development. In fact, many of the prescription drugs derived from plants have been approved for the clinical use in treating cancer, malaria and other metabolic diseases. For example, paclitaxel used in the treatment of various cancers is derived from the bark of the Pacific yew tree, *Taxus brevifolia*. Vinblastine isolated from Madagascar periwinkle plant (*Vinca rosea*) is also useful in treating cancers such as leukaemia, testicular teratoma and Hodgkin's disease. Natural products have recently regained its prominent role in drug discovery with the increasing recognition of significance of their structural diversity and expanding exploration of their therapeutic use.

One of the plants that have elicited a great deal of interests and attention among researchers of late is *Strobilanthes crispus* (L.) Blume, which is a woody shrub found distributed throughout the regions of Madagascar to Indonesia. It is locally identified by other common names such as "daun picah beling" in Jakarta or "enyoh kelo", "kecibelung", or "bejibeling" in Java and as "pecah kaca" or "jin batu" in Malaysia. A mature plant usually reaches a height of 1 to 2 m and can be found growing wild along the river banks, in abandoned fields or cultivated. The leaves of *S. crispus* are described as oblong-lanceolate, rather obtuse, with the edge shallowly crenated and covered with short hairs on both surface. The upper surface of the leaves is in a shade of darker green and less rough when compared to the underside. The yellow-coloured flowers of the plant are short, dense and are panicled spikes.

The leaves of the plant are the part used in folklore medicine in Malaysia and Indonesia. Traditionally, fresh or dried leaves were boiled with water and the infusion made has been shown to have anti-diabetes, anticancer, laxative, diuretic and antilytic properties. The dried form may have a longer shelf life preserved in a sealed bag, away from sunlight, heat and moisture. Topical application of macerated leaves on wounds caused by poisonous snakebites was reported to have toxin neutralization effect along with pain and swelling alleviation. Fresh leaves are masticated and swallowed to improve the immune system as indicated by a survey carried out among the indigenous people living in Perak of West Malaysia. The plant has been promoted as containing a rich source of cystoliths of calcium carbonate and the infusion is slightly alkaline thus aid in urination. Daily tea consumption of *S. crispus* contains catechin, serving as potential antioxidant in cancer prevention.

In recent years, herbal preparations of *S. crispus* are increasingly used by the general public as an alternative option to promote overall well-being as well as for therapeutic and disease preventing purposes. The synergistic and side effects reducing properties of the plant when used with current treatment have widely been purported in local community. However, the mechanism of action, potency, efficacy and safety is still poorly understood and studied. Hence, additional research is required to be carried out to establish a strong scientific basis for its promoted use before the large-scale commercialisation. In this review, we will focus on

discussing the scientifically proven pharmacological properties of the plant including anti-carcinogenesis, anti-glycaemia, antioxidant and wound healing; together with its mode of action and the future potential to be used as therapeutic drug.

Chikira M, Ng CH, Palaniandavar M. Interaction of DNA with simple and mixed ligand copper(II) complexes of 1,10-phenanthrolines as studied by DNA-fiber EPR spectroscopy. *International Journal of Molecular Sciences*, 2015; 16: 22754. doi: 10.3390/ijms160922754. (ISI IF: 2.862; SCI IF: 2.972; H-Index: 53; Tier: Q1).

## **Interaction of DNA with simple and mixed ligand copper(II) complexes of 1,10-phenanthrolines as studied by DNA-fiber EPR spectroscopy.**

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<sup>2</sup>Department of Pharmaceutical Chemistry, International Medical University, Kuala Lumpur 57000, Malaysia;

<sup>3</sup>Department of Chemistry, Indian Institute of Technology Bombay, Powai, Mumbai 400 076, India

### **Abstract**

The interaction of simple and ternary Cu(II) complexes of 1,10-phenanthrolines with DNA has been studied extensively because of their various interesting and important functions such as DNA cleavage activity, cytotoxicity towards cancer cells, and DNA based asymmetric catalysis. Such functions are closely related to the DNA binding modes of the complexes such as intercalation, groove binding, and electrostatic surface binding. A variety of spectroscopic methods have been used to study the DNA binding mode of the Cu(II) complexes. Of all these methods, DNA-fiber electron paramagnetic resonance (EPR) spectroscopy affords unique information on the DNA binding structures of the complexes. In this review we summarize the results of our DNA-fiber EPR studies on the DNA binding structure of the complexes and discuss them together with the data accumulated by using other measurements.

**Keywords:** electron paramagnetic resonance; DNA fiber; Cu(II) complexes; 1,10-phenanthrolines; DNA binding structures; DNA conformation.

Chong CW, Ahmad AF, Lim YaL, Teh CSJ, Yap IKS, Lee SC, Chin YT, Loke PN, Chua KH. Effect of ethnicity and socioeconomic variation to the gut microbiota composition among pre-adolescent in Malaysia. *Scientific Reports*, 2015; 5: 13338. DOI: 10.1038/srep13338. (SCI IF: 4.695; H-Index: 42; Tier: Q1).

## **Effect of ethnicity and socioeconomic variation to the gut microbiota composition among pre-adolescent in Malaysia.**

Chun Wie Chong<sup>1</sup>, Arine Fadzlun Ahmad<sup>2</sup>, Yvonne Ai Lian Lim<sup>2</sup>, Cindy Shuan Ju Teh<sup>3</sup>, Ivan Kok Seng Yap<sup>1</sup>, Soo Ching Lee<sup>2</sup>, Yuee Teng Chin<sup>2</sup>, P'ng Loke<sup>4</sup> & Kek Heng Chua<sup>5</sup>.

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<sup>2</sup>Department of Parasitology, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

<sup>3</sup>Department of Medical Microbiology, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

<sup>4</sup>Department of Microbiology, New York University School of Medicine, 10010 New York, United States of America.

<sup>5</sup>Department of Biomedical Science, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

### **Abstract**

Gut microbiota plays an important role in mammalian host metabolism and physiological functions. The functions are particularly important in young children where rapid mental and physical developments are taking place. Nevertheless, little is known about the gut microbiome and the factors that contribute to microbial variation in the gut of South East Asian children. Here, we compared the gut bacterial richness and composition of pre-adolescence in Northern Malaysia. Our subjects covered three distinct ethnic groups with relatively narrow range of socioeconomic discrepancy. These included the Malays (n = 24), Chinese (n = 17) and the Orang Asli (indigenous) (n = 20). Our results suggested a strong ethnicity and socioeconomic-linked bacterial diversity. Highest bacterial diversity was detected from the economically deprived indigenous children while the lowest diversity was recorded from the relatively wealthy Chinese children. In addition, predicted functional metagenome profiling suggested an over-representation of pathways pertinent to bacterial colonisation and chemotaxis in the former while the latter exhibited enriched gene pathways related to sugar metabolism.

Chong CW, Pearce DA, Convey P. Emerging spatial patterns in Antarctic prokaryotes. *Frontiers in Microbiology*, 2015; 6: Article 1058. [IMU external grant – IMUR121/2013]. (SCI IF: 3.773; H-Index: 32; Tier: Q1).

## Emerging spatial patterns in Antarctic prokaryotes.

Chun-Wie Chong<sup>1,2</sup>, David A. Pearce<sup>2,3,4,5</sup> and Peter Convey<sup>2,5</sup>.

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<sup>2</sup>National Antarctic Research Center, University of Malaya, Kuala Lumpur, Malaysia,

<sup>3</sup>Faculty of Health and Life Sciences, University of Northumbria, Newcastle upon Tyne, UK,

<sup>4</sup>University Centre in Svalbard, Longyearbyen, Norway,

<sup>5</sup>British Antarctic Survey, Cambridge, UK

### Abstract

Recent advances in knowledge of patterns of biogeography in terrestrial eukaryotic organisms have led to a fundamental paradigm shift in understanding of the controls and history of life on land in Antarctica, and its interactions over the long term with the glaciological and geological processes that have shaped the continent. However, while it has long been recognized that the terrestrial ecosystems of Antarctica are dominated by microbes and their processes, knowledge of microbial diversity and distributions has lagged far behind that of the macroscopic eukaryote organisms. Increasing human contact with and activity in the continent is leading to risks of biological contamination and change in a region whose isolation has protected it for millions of years at least; these risks may be particularly acute for microbial communities which have, as yet, received scant recognition and attention. Even a matter apparently as straightforward as Protected Area designation in Antarctica requires robust biodiversity data which, in most parts of the continent, remain almost completely unavailable. A range of important contributing factors mean that it is now timely to reconsider the state of knowledge of Antarctic terrestrial prokaryotes. Rapid advances in molecular biological approaches are increasingly demonstrating that bacterial diversity in Antarctica may be far greater than previously thought, and that there is overlap in the environmental controls affecting both Antarctic prokaryotic and eukaryotic communities. Bacterial dispersal mechanisms and colonization patterns remain largely unaddressed, although evidence for regional evolutionary differentiation is rapidly accruing and, with this, there is increasing appreciation of patterns in regional bacterial biogeography in this large part of the globe. In this review, we set out to describe the state of knowledge of Antarctic prokaryote diversity patterns, drawing analogy with those of eukaryote groups where appropriate. Based on our synthesis, it is clear that spatial patterns of Antarctic prokaryotes can be unique at local scales, while the limited evidence available to date supports the group exhibiting overall regional biogeographical patterns similar to the eukaryotes. We further consider the applicability of the concept of “functional redundancy” for the Antarctic microbial community and highlight the requirements for proper consideration of their important and distinctive roles in Antarctic terrestrial ecosystems.

**Keywords:** spatial pattern, Antarctica, prokaryotes, functional redundancy, biogeography.

Chong KT, Wong SF, Mak JW, Loh LC, Ho TM. Sero-prevalence study of IgE responses to allergens from Malaysian house dust (HDM) and storage mites (SM). *Tropical Biomedicine*, 2015; 32(3): 1-17. [BMedSc BMS I-01/2011(02) and eSceince fund (02-02-09-SF007)] (ISI IF: 0.063; SCI IF: 0.931; H-Index: 20; Tier: Q3).

## **Sero-prevalence study of IgE responses to allergens from Malaysian house dust (HDM) and storage mites (SM).**

Chong, K.T.<sup>1</sup>, Wong, S.F.<sup>1</sup>, Mak, J.W.<sup>1</sup>, Loh, L.C.<sup>2</sup> and Ho, T.M.<sup>3</sup>.

<sup>1</sup>International Medical University, 57000 Kuala Lumpur, Malaysia

<sup>2</sup>Department of Medicine, Penang Medical College, 10450 Pulau Pinang, Malaysia

<sup>3</sup>Clinical Research Center, 50588 Kuala Lumpur, Malaysia

### **Abstract**

Allergens of *Dermatophagooides* and *Blomia* species are well-characterized but not for other species. This study was conducted to determine the prevalence of allergic sensitization to house dust (HDM) and storage mites (SM). One hundred adult subjects (aged > 18) were recruited. The mite specific IgE of all allergic subjects were higher compared with healthy subjects despite being not statistically significant except for *D. farinae* and *G. malayensis*. The mean serum IgE levels against HDM and SM for allergic subjects were significantly higher compared with those in healthy subjects. They were mainly sensitized to *Dermatophagooides farinae* (35%) and *Glycycometus malayensis* (37%). Immunoblots revealed not all allergic subjects showed positive immuno-reactivity against the mites tested. Single or multiple bands were observed for different species. The subjects were commonly sensitized to Group 2 (9-12 kDa), 10 (38 kDa) and 18 (40-48 kDa) allergens. Twenty-one out of 60 allergic subjects were sensitized to either one or more species. The majority of them (71%) were sensitized to single species. The allergic subjects were mainly sensitized to *D. pteronyssinus*, followed by *Tyrophagus putrecentiae* and *Aleuroglyphus ovatus*. Seven were solely sensitized to HDM while 10 were solely sensitized to SM. Four subjects were sensitized to both. Preadsorption study revealed no cross-reactivity. There was difference between the prevalence and reactivity to allergens of HDM and SM in these subjects. Both ELISA and immunoblot did not correlate well but can complement each other in improving the detection of mite allergens to the species level.

Chopdey PK, Tekade RK, Mehra NK, Mody N, Jain NK. Glycyrrhizin conjugated dendrimer and multi-walled carbon nanotubes for liver specific delivery of doxorubicin. *Journal of Nanoscience and Nanotechnology*, 2015; 15: 1088-100. (SCI IF: 1.551; H-Index: 74; Tier: Q3).

## **Glycyrrhizin conjugated dendrimer and multi-walled carbon nanotubes for liver specific delivery of doxorubicin.**

Chopdey PK, Tekade RK, Mehra NK, Mody N, Jain NK.

### **Abstract**

The purpose of the present investigation was to investigate the drug targeting potential of glycyrrhizin (GL) conjugated dendrimers (GLPPI) and multi walled carbon nanotubes (GLWCNTs) towards liver targeting of a model anticancer agent, doxorubicin (DOX). The synthesis was confirmed by FTIR, <sup>1</sup>HNMR and morphology analysis. Higher DOX loading was observed in case of GLPPIDOX and GLWCNTDOX ( $43.02 \pm 0.64\%$  and  $87.26 \pm 0.57\%$ , respectively) than parent nanocarriers. GL attachment considerably reduced the haemolytic toxicity of DOX by  $12.38 \pm 1.05$  and  $7.30 \pm 0.63\%$  by GLPPIDOX and GLWCNTDOX, respectively. MTT cytotoxicity studies, flow cytometry and cell morphology assessment was done in HepG2 cell. The IC<sub>50</sub> of DOX was reduced from  $4.19 \pm 0.05 \mu\text{M}$  to  $2.0 \pm 0.01$  and  $2.7 \pm 0.03 \mu\text{M}$ , respectively by GLPPIDOX and GLWCNTDOX, respectively. Flow cytometry and phase contrast microscopy confirmed GL conjugated formulations to be significantly dragging higher cancer cell number of cells in early apoptosis as well as in early apoptotic phase.

Das B, Sarkar C. An innovative flipped class intervention to improve dose calculation skills of phase I medical students: A preliminary study. *Procedia - Social and Behavioral Sciences*, 2015; 182: 67–74. (SCI IF: 0.221; H-Index: 16).

## **An innovative flipped class intervention to improve dose calculation skills of phase I medical students: A preliminary study.**

Biswadeep Das<sup>1</sup>, Chayna Sarkar<sup>2</sup>.

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<sup>2</sup>Department of Pharmacology, North Eastern Indira Gandhi Regional Institute of Health & Medical Sciences (NEIGRIHMS), Mawdiangdiang, Shillong-793018, Meghalaya, India.

### **Abstract**

Numeracy is important in the practice of medicine. Few studies have addressed the ability of medical students to perform arithmetical calculations required to identify the correct mass or volume of a drug in solution. This study assessed the ability of Phase I medical students to effectively recall and use knowledge of systems and measures for calculation of strengths of drugs in solution before and after a Systems of Measure & Dosage Calculation Flipped Class Session (SMDC-FCS). Those participating voluntarily were present during the pre- & post-SMDC-FCS to answer selected questions in succession under timed conditions. The questions were devised to test knowledge of medications used across multiple specialities. Our study data indicates that our medical students are not informally picking up requisite knowledge and skills during the MBBS course. A SMDC-FCS intervention improved medical student performance of dose calculations.

**Keywords:** Numeracy; dose calculation; Flipped class; undergraduate medical students.

Farah Syazana Ahmad Shahabuddin, Nur Hazirah Ahmat, Ahmed Ikhwan Mohamad, Lau KM, Siti Aisyah Mohd Yusof, Teh PC, Koh KC. A comparative study on how medical students learn about the use of abbreviations in medical practice. *IeJSME*, 2015; 9(2): 13-21. (MyCite IF: 0.038).

## A comparative study on how medical students learn about the use of abbreviations in medical practice.

Farah Syazana Ahmad Shahabuddin<sup>1</sup>, Nur Hazirah Ahmat<sup>1</sup>, Ahmed Ikhwan Mohamad<sup>1</sup>, Kit Mun Lau<sup>1</sup>, Siti Aisyah Mohd Yusof<sup>1</sup>, Pei Chiek Teh<sup>2</sup>, Kwee Choy Koh<sup>3</sup>.

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### Abstract

**Background:** Misinterpretation of abbreviations by healthcare workers has been reported to compromise patient safety. Medical students are future doctors. We explored how early medical students acquired the practice of using abbreviations, and their ability to interpret commonly used abbreviations in medical practice.

**Method:** Eighty junior and 74 senior medical students were surveyed using a self-administered questionnaire designed to capture demographic data; frequency and reasons for using abbreviations; from where abbreviations were learned; frequency of encountering abbreviations in medical practice; prevalence of mishaps due to misinterpretation; and the ability of students to correctly interpret commonly used abbreviations. Comparisons were made between senior and junior medical students.

**Results:** Abbreviation use was highly prevalent among junior and senior medical students. They acquired the habit mainly from the clinical notes of doctors in the hospital. They used abbreviations mainly to save time, space and avoid writing in full sentences. The students experienced difficulties, frustrations and often resorted to guesswork when interpreting abbreviations; with junior students experiencing these more than senior students. The latter were better at interpreting standard and nonstandard abbreviations. Nevertheless, the students felt the use of abbreviations was necessary and acceptable. Only a few students reported encountering mishaps in patient management as a result of misinterpretation of abbreviations.

**Conclusion:** Medical students acquired the habit of using abbreviations early in their training. Senior students knew more and correctly interpreted more standard and non-standard abbreviations compared to junior students. Medical students should be taught to use standard abbreviations only.

**Keywords:** Abbreviations, medical students, medical practice, medical errors, patient safety.

Furman BL. The peer-review process for journals in the biomedical sciences; love it or loathe it, it won't go away! *IeJSME*, 2015; 9(3): 1-3. (MyCite IF: 0.038).

## **The peer-review process for journals in the biomedical sciences; love it or loathe it, it won't go away!**

Brian L Furman.

Emeritus Professor of Pharmacology, University of Strathclyde, Glasgow, UNITED KINGDOM.

### **Abstract**

All of us who work as scientists have experienced the joys, as well as the trials and tribulations of the peer review process. I would be surprised if there are any among the readership of this editorial who have not received a letter or e-mail from an editor informing them that their paper has not been considered suitable for publication – I certainly have! Such letters evoke the natural response of disappointment, which may turn to rage on subsequent reading of the reviewers' reports. This may be followed by incredulity at the sheer stupidity of the reviewers in their incapacity to understand the manuscript and its importance! While such incompetence on the part of the reviewers is possible, it is relatively unlikely and this editorial attempts to provide a critical appraisal of the process whereby these decisions are taken. The peer review process has been hotly debated, including the 2006 online debate in Nature, to which I shall make several references. While trying to be impartial, I must declare that I am part of the process, having been an author since publication of my first paper in 1969, a regular reviewer since around 1975 and a member of several editorial boards. I shall briefly describe the process, then discuss its pitfalls and finally try to suggest how it may be improved.

Ganasegeran K, Perianayagam W, Rizal Abdul Manaf, Saad Ahmed Ali Jadoo, Sami Abdo Radman Al-Dubai. Patient satisfaction in Malaysia's busiest outpatient medical care. *The Scientific World Journal*, 2015; Volume 2015: Article ID 714754. DOI: <http://dx.doi.org/10.1155/2015/714754>. (SCI IF: 1.19; H-Index: 40; Tier: Q2).

## Patient satisfaction in Malaysia's busiest outpatient medical care.

Kurubaran Ganasegeran<sup>1</sup>, Wilson Perianayagam<sup>1</sup>, Rizal Abdul Manaf<sup>2</sup>, Saad Ahmed Ali Jadoo<sup>3,4</sup> and Sami Abdo Radman Al-Dubai<sup>5</sup>.

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### Abstract

This study aimed to explore factors associated with patient satisfaction of outpatient medical care in Malaysia. A cross-sectional exit survey was conducted among 340 outpatients aged between 13 and 80 years after successful clinical consultations and treatment requirements using convenience sampling at the outpatient medical care of Tengku Ampuan Rahimah Hospital (HTAR), Malaysia, being the country's busiest medical outpatient facility. A survey that consisted of sociodemography, socioeconomic, and health characteristics and the validated Short-Form Patient Satisfaction Questionnaire (PSQ-18) scale were used. Patient satisfaction was the highest in terms of service factors or tangible priorities, particularly "technical quality" and "accessibility and convenience," but satisfaction was low in terms of service orientation of doctors, particularly the "time spent with doctor," "interpersonal manners," and "communication" during consultations. Gender, income level, and purpose of visit to the clinic were important correlates of patient satisfaction. Effort to improve service orientation among doctors through periodical professional development programs at hospital and national level is essential to boost the country's health service satisfaction.

George P, Ramasamy P, Thurairajasingam S, Shah Z. Patients that benefit from buprenorphine-naloxone on medically assisted treatment for opioid dependence in Malaysia: A case series. *The Medical Journal of Malaysia*, 2015; 70(4): 251-255. (SCI IF: 0.6; H-Index: 21; Tier: Q3).

## **Patients that benefit from buprenorphine-naloxone on medically assisted treatment for opioid dependence in Malaysia: A case series.**

Philip George<sup>1</sup>, Parameswaran Ramasamy<sup>2</sup>, Sivakumar Thurairajasingam<sup>3</sup>, Zia Shah<sup>4</sup>.

<sup>1</sup>Department of Psychiatry, International Medical University, Clinical School, Seremban, Negeri Sembilan

<sup>2</sup>Department of Psychiatry, Hospital Kuala Pilah, Negeri Sembilan

<sup>3</sup>Department of Psychiatry, Monash University, Johor Bahru, Johor

<sup>4</sup>PERTIWI Health Services, Kuala Lumpur

### **Abstract**

**Introduction:** Opioid dependence is recorded as the most common drug of abuse in Malaysia. Currently, the preferred substitution therapy for most Government treatment centres is methadone used as substitution therapy for opioid dependence. There are, however patients who may benefit from being on the combined buprenorphine-naloxone formulation as substitution therapy instead.

We discuss six cases of opioid dependence of varied backgrounds that were treated with buprenorphine-naloxone therapy and their outcomes.

**Discussion:** All of the reported patients improved after the induction of buprenorphine-naloxone. Two of the cases highlighted the transfer of patients on methadone to buprenorphine-naloxone due to the adverse effect and interactions of methadone with other medications. During the transfer there were no major adverse reactions noted, and patients were safely able to continue with the maintenance therapy of buprenorphine-naloxone.

**Conclusion:** Buprenorphine-naloxone is a safe and effective drug substitution therapy for opioid dependence. It has fewer interactions with other medications, and has similar efficacy to methadone. Being a partial agonist, it has a less sedating effect making patients more functional.

**Keywords:** Medication assisted treatment, opioid, buprenorphine-naloxone, benefits.

George P. Outcomes from the Malaysian arm of the international survey informing greater insights in opioid dependence treatment (INSIGHT) project. *The Medical Journal of Malaysia*, 2015; 70(2): 117-124. (SCI IF: 0.6; H-Index: 21; Tier: Q3).

## **Outcomes from the Malaysian arm of the international survey informing greater insights in opioid dependence treatment (INSIGHT) project.**

Parikial George.

International Medical University, Clinical School, Jalan Rasah, 70300 Seremban, Negeri Sembilan, Malaysia

### **Abstract**

**Background:** Opioid dependence (OD) is a chronic, relapsing condition representing a significant societal burden in Asia. Opioid maintenance treatment (OMT) in combination with psychosocial treatment is considered to be the most effective strategy to treat opioid dependence. In Malaysia, about 52,000 patients reported receiving OMT in December 2012.

**Objective:** The International Survey Informing Greater Insights in Opioid Dependence Treatment (INSIGHT) project aimed to assess aspects of OMT access and quality of care by surveying patients and users with opioid dependence, and healthcare professionals treating opioid-dependent patients.

**Materials and Methods:** Using a structured questionnaire, 50 patients who were currently receiving OMT (or had received OMT in the past 3 months) and 77 physicians were surveyed in Malaysia regarding the provision and quality of OMT.

**Results:** Patients were predominately male and in their thirties. Nearly all patients (98%) reported currently receiving methadone liquid; almost half (48%) reported ever having received psychosocial counselling and only 14% had ever received buprenorphine-naloxone in the past. Most physicians reported they were treating their patients with OMT (77% on methadone and 15% on buprenorphine-naloxone), and 3% used psychosocial counselling alone. Although methadone maintenance doses were close to levels recommended by WHO guidelines, induction doses of methadone, and both induction and maintenance doses of buprenorphine were well below these levels in Malaysia.

**Conclusions:** The findings suggest that OMT implementation in Malaysia can be improved by providing patients with more education on treatment options, better access to available treatments, including abuse-deterrent formulations, and psychosocial support.

**Keywords:** Methadone, buprenorphine, opiate substitution treatment, Malaysia, humans, heroin dependence.

Ghaneshwari R, Rohit KV, Jamunarani A, Ankur B. Awareness of risk factors for skin infections and its impact on quality of life among adults in a Malaysian city: A cross-sectional study. *Tropical Journal of Pharmaceutical Research*, 2015; 14(10): 1319-1326. [IMU Sem 7 research grant- (BPI-01/11(48)2014)]. (ISI IF: 0.589; SCI IF: 0.713; H-Index: 16; Tier: Q3).

## **Awareness of risk factors for skin infections and its impact on quality of life among adults in a Malaysian city: A cross-sectional study.**

Ghaneshwari Ramamuthie<sup>1</sup>, Rohit Kumar Verma<sup>1</sup>, Jamunarani Appalasamy<sup>1</sup>, and Ankur Barua<sup>2</sup>.

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<sup>2</sup>Department of Community Medicine, School of Medicine, International Medical University, Bukit Jalil, Kuala Lumpur, Malaysia-57000

### **Abstract**

**Purpose:** To explore the level of awareness of risk factors related to skin infection and its impact on quality of life (QoL) in Klang, Malaysia.

**Methods:** A cross-sectional study was conducted among adults in Klang, Malaysia using a validated questionnaire and Dermatology Quality of Life Index (DLQI). A stratified and convenient sampling technique was executed. Multivariate analysis was employed to summarize significant relationships between variables.

**Results:** The prevalence of skin infection was 59%. A majority (51.9%) of the participants had experienced or claimed to have bacterial infections of the skin. More than 50% of them were aware of the risk factors for skin infection. Several significant associations ( $p < 0.05$ ) between variables of awareness of risk factors associated with skin infection and QoL were documented.

**Conclusion:** Awareness of the risk factors contributing to skin infection do play a major role in improving basic understanding of skin infections and quality of life among Malaysians in Klang.

**Keywords:** Skin infection, Awareness, Risk factors, Quality of Life.

Gupta G, Tay JJ, Lim YW, Chellappan DK, Candasamy M, Dua K. Pharmacological evaluation of antidepressant-like effect of genistein and its combination with amitriptyline: An acute and chronic study. *Advances in Pharmacological Sciences*, 2015; Volume 2015, Article ID: 164943. Doi: <http://dx.doi.org/10.1155/2015/164943>. (SCI IF: 2.189; H-Index: 9; Tier: Q1).

## **Pharmacological evaluation of antidepressant-like effect of genistein and its combination with amitriptyline: An acute and chronic study.**

Gaurav Gupta<sup>1,2</sup>, Tay Jia Jia<sup>1</sup>, Lim Yee Woon<sup>1</sup>, Dinesh Kumar Chellappan<sup>1</sup>, Mayuren Candasamy<sup>1</sup>, and Kamal Dua<sup>3</sup>.

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<sup>2</sup>School of Medicine and Public Health, University of Newcastle, Newcastle, NSW 2308, Australia

<sup>3</sup>School of Biomedical Science, University of Newcastle, Newcastle, NSW 2308, Australia

### **Abstract**

The present study was designed to evaluate the acute and chronic antidepressant effect of genistein in combination with amitriptyline in mice. Animals were divided into six groups ( $n = 6$ ) for treatment with water, genistein, or amitriptyline, either alone or in combination for ten days. Animals were subjected to locomotor activity testing; tail suspension test (TST); and forced swim test (FST) and immobility time was recorded on day one and day ten. Acute treatment of all treatment groups did not significantly reduce the immobility time ( $p > 0.05$ ). Chronic treatment of combination of genistein (10mg/kg) and amitriptyline (5mg/kg and 10mg/kg) significantly reduced the immobility time as compared to control group ( $p < 0.001$ ) and was comparable to amitriptyline alone (10 mg/kg). However, no changes in anti-immobility activity in combination of sub-effective doses of genistein (5mg/kg) and amitriptyline (5mg/kg) were observed. Genistein at its standard dose (10mg/kg) rendered synergistic effects in combination with sub-effective dose of amitriptyline (5mg/kg) and additive effects in combination with therapeutic dose of amitriptyline (10mg/kg).

Gupta S, Parolia A, Jain A, Kundabala M, Mohan M, de Moraes Porto IC. A comparative effect of various surface chemical treatments on the resin composite-composite repair bond strength. *Journal of Indian Society of Pedodontics and Preventive Dentistry*, 2015; 33(3): 245-9. (IF: NA).

### **A comparative effect of various surface chemical treatments on the resin composite-composite repair bond strength.**

Shaloo Gupta<sup>1</sup>, Abhishek Parolia<sup>2</sup>, Ashish Jain<sup>3</sup>, Kundabala M<sup>3</sup>, Mandakini Mohan<sup>2</sup>, Isabel Cristina Celerino de Moraes Porto<sup>4</sup>.

<sup>1</sup>Department of Prosthodontics, Manipal College of Dental Sciences, Manipal, Karnataka, India,

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<sup>3</sup>Department of Conservative Dentistry and Endodontics, Manipal College of Dental Sciences, Mangalore, Karnataka, India,

<sup>4</sup>Department of Restorative Dentistry, Federal University of Alagoas, Maceio, Alagoas, Brazil

#### **Abstract**

**Aim:** The aim of this in vitro study was an attempt to investigate the effect of different surface treatments on the bond strength between pre-existing composite and repair composite resin.

**Materials and Methods:** Forty acrylic blocks were prepared in a cuboidal mould. In each block, a well of 5 mm diameter and 5 mm depth was prepared to retain the composite resin (Filtek™ Z350, 3M/ESPE). Aging of the composite discs was achieved by storing them in water at 37°C for 1 week, and after that were divided into 5 groups ( $n = 8$ ) according to surface treatment: Group I- 37% phosphoric acid, Group II-10% hydrofluoric acid, Group III-30% citric acid, Group IV-7% maleic acid and Group V- Adhesive (no etchant). The etched surfaces were rinsed and dried followed by application of bonding agent (Adper™ Single Bond 2. 3M/ESPE). The repair composite was placed on aged composite, lightcured for 40 seconds and stored in water at 37°C for 1 week. Shear bond strength between the aged and the new composite resin was determined with a universal testing machine (crosshead speed of 0.5 mm/min).

**Statistical Analysis:** The compressive shear strengths were compared for differences using ANOVA test followed by Tamhane's T2 post hoc analysis.

**Results:** The surface treatment with 10% hydrofluoric acid showed the maximum bond strength followed by 30% citric acid, 7% maleic acid and 37% phosphoric acid in decreasing order.

**Conclusion:** The use of 10% hydrofluoric acid can be a good alternative for surface treatment in repair of composite resin restoration as compared to commonly used 37% orthophosphoric acid.

**Keywords:** Composite resins, dental restoration failure, dental restoration repair, operative dentistry.

Hasan SS, Mei TK, Ahmed SI, David CWK, Chin OH, Basariah N. Quality of Life (QoL) and International Normalized Ratio (INR) Control in Malaysian patients on long-term anticoagulation therapy. *Public Health*, 2015; DOI: 10.1016/j.puhe.2015.05.014. (SCI IF: 1.508; H-Index: 47; Tier: Q2).

## **Quality of Life (QoL) and International Normalized Ratio (INR) Control in Malaysian patients on long-term anticoagulation therapy.**

S.S. Hasan<sup>1</sup>, K.M. Teh<sup>1</sup>, S.I. Ahmed<sup>1</sup>, D.W.K. Chong<sup>1</sup>, H.C. Ong<sup>1</sup>, B. Naina<sup>3</sup>.

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<sup>3</sup>General Hospital Kuala Lumpur, Jalan Pahang, Kuala Lumpur 50586, Malaysia

<sup>4</sup>Monash University, Sunway Campus Malaysia, Jalan Lagoon Selatan, Bandar Sunway 46150, Malaysia

### **Abstract**

**Objectives:** To investigate association between quality of life (QoL) and International Normalized Ratio (INR) control, with the secondary aim of assessing QoL using generic and anticoagulation-specific, the Short Form Health Survey (SF-12) and the Duke Anticoagulation Satisfaction Scale (DASS).

**Study design:** This study assessed anticoagulation related QoL at three time intervals in two groups of patients on long-term warfarin therapy.

**Methods:** Data of 326 randomly sampled patients (163 patients each in DASS and SF-12 groups) who had been on warfarin therapy for at least one year at anticoagulation clinics were analysed. QoL was assessed at three time intervals: at the start, six months and one year of warfarin therapy. Indications and target INR ranges and subjects INR values were recorded. Time in Therapeutic Range (TTR) was estimated for four subject subgroups, based on target ranges of INR for clustered indications.

**Results:** Of the total, 43% of the subjects were aged between 50 and 64 years, and 51% were female. DASS assessed subjects older than 35 years perceived significant decrease in overall mean scores of anticoagulation related QoL, whilst all SF-12 assessed subjects perceived an increase in QoL. The mean percentage days in range for all INR target range subgroups did not exceed more than 60% but there was only a weak correlation ( $R^2=0.104$ ,  $P>0.05$ ) between INR control and overall QoL.

**Conclusion:** Malaysian urban outpatients on warfarin treatment longer than one year report a significant overall decrease in QoL, as measured using a validated condition-specific instrument. These patients appeared to adapt well to lifestyle limitations imposed by long term anticoagulation.

**Keywords:** Quality of life, International Normalized Ratio, Anticoagulation therapy.

Hazwanie H, Gan SY, Nalliah S. The relevance of genetic polymorphism of CYP1A1, ICAM-1, TNF- $\alpha$  and INSR genes in women with polycystic ovary syndrome (PCOS). *Journal of Medical and Bioengineering*, 2015; 4(5): 367-370. doi: 10.12720/jomb.4.5.367-370. (IF: NA).

## **The relevance of genetic polymorphism of CYP1A1, ICAM-1, TNF- $\alpha$ and INSR genes in women with polycystic ovary syndrome (PCOS).**

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<sup>2</sup>School of Medicine, Department of Obstetrics and Gynecology, International Medical University (IMU), Malaysia

### **Abstract**

Polycystic Ovarian Syndrome (PCOS) is a complex endocrine disorder commonly seen in about 6.5 - 8% of women of reproductive age. Polygenic trait is common in PCOS and various factors related to the androgenic pathways and the metabolic syndrome have been studied including genes encoding inflammatory cytokines. In this respect we aimed to study the involvement of polymorphisms of four genes; cytochrome P450 1A1 (CYP1A1), intercellular adhesion molecule (ICAM-1), tumour necrosis factor alpha (TNF- $\alpha$ ) and insulin receptor gene (INSR). Twelve women fulfilling the criteria of PCOS and 145 controls were recruited. In this study, TNF- $\alpha$  -1031 (T/C) (rs1799964) is found to be significantly higher in PCOS group compared to healthy controls (OR = 5.044; CI: 2.139 - 11.899; p-value < 0.05). This suggests TNF- $\alpha$  -1031 (T/C) appears to be a potential candidate as a molecular marker in determining PCOS risk. This study also found a strong association between PCOS and obesity (BMI>25); obesity is a major risk factor of PCOS. Studies of association enables clinicians to have a better understanding of the genetic factors for PCOS especially in a multi-ethnic population such as Malaysia, where robust data addressing PCOS are still lacking.

**Keywords:** polycystic ovarian syndrome (PCOS), polymorphism, single nucleotide polymorphisms (SNPs).

Ho KL, Chung WE, Choong KE, Cheah YL, Phua EY, Srinivasan R. Anti-proliferative activity and preliminary phytochemical screening of *Ipomoea quamoclit* leaf extracts. *Research Journal of Medicinal Plant*, 2015; 9 (3): 127-134. (SCI IF: 0.686; H-Index: 15; Tier: Q1).

## **Anti-proliferative activity and preliminary phytochemical screening of *Ipomoea quamoclit* leaf extracts.**

Ket Li Ho, Wei Ern Chung, Kah Ee Choong, Yan Li Cheah, Ee Ying Phua and Ramamurthy Srinivasan.

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### **Abstract**

*Ipomoea quamoclit* is a plant traditionally used to treat hemorrhoids, ulcers, diabetes and cancer. However, the anticancer property of this plant have not yet been scientifically tested. Hence, the present study aims to examine the anti-proliferative effect of the methanol, dichloromethane, ethyl acetate and hexane extracts of *Ipomoea quamoclit* leaves (15-1000 µg mL<sup>-1</sup>) on MCF-7 (breast adenocarcinoma), HeLa (cervix adenocarcinoma), CNE-1 (nasopharyngeal carcinoma), HT-29 (colorectal adenocarcinoma) and 3T3 (normal mouse fibroblast) cell lines. Besides, preliminary phytochemical screening of each extract was also conducted. The methanol leaf extract of *Ipomoea quamoclit* was shown to possess the highest anti-proliferative activity against the tested cell lines. The greatest activity was observed on CNE-1 ( $IC_{50} = 18 \pm 1.00 \mu\text{g mL}^{-1}$ ) and HT-29 ( $IC_{50} = 18 \pm 1.00 \mu\text{g mL}^{-1}$ ). Dichloromethane, ethyl acetate and hexane extracts showed weak anti-proliferative activity. Phytochemical screening detected the presence of steroids, triterpenes, phenol, flavonoids and diterpenes in all four extracts but carbohydrates were only found in the methanol and ethyl acetate extracts. Whereas, hexane was the only extract that contains saponins.

**Keywords:** Anti-proliferative activity, *Ipomoea quamoclit*, breast cancer, nasopharyngeal carcinoma, cervical cancer, colon cancer, mouse fibroblast.

Imran AS, Syed Azhar SS, Mohammad Azmi H, Lee CKC. Adverse drug reactions and quality of life in HIV/AIDS patients: Advocacy on valuation and role of pharmacovigilance in developing countries. *HIV & AIDS Review*, 2015; 14: 28–30. (SCI IF: 0.265; H-Index: 4; Tier: Q4).

## **Adverse drug reactions and quality of life in HIV/AIDS patients: Advocacy on valuation and role of pharmacovigilance in developing countries.**

Imran Ahmed Syed<sup>1,2</sup>, Syed Azhar Syed Sulaiman<sup>1</sup>, Mohammad Azmi Hassali<sup>1</sup>, Christopher K.C. Lee<sup>3</sup>.

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<sup>2</sup>School of Pharmacy, International Medical University (IMU), Kuala Lumpur, Malaysia

<sup>3</sup>Department of Medicine, Hospital Sungai Buloh, Selangor, Malaysia

### **Abstract**

**Background:** Evolution of ART treatment of HIV/AIDS presents challenges for patients and health-care professionals, and thus measures of quality of life (QOL) is imperative to maximize outcomes. Similar to other chronic illnesses, HIV patients face challenges in adherence to their medications and experience side effects affecting their overall well-being, a primary outcome of HIV/AIDS treatment.

**Discussion:** Adverse drug reactions (ADRs) are widely accepted as one of the most significant factors affecting the treatment outcomes which often pose negative impact on patients' quality of life. This becomes more evident in the treatment of chronic illnesses such as HIV & AIDS, where ADRs are often accountable for issues like non-adherence, which may not only affect the patients' confidence on ARVs but can eventually affect the whole outcome of the treatment. There is no doubt about the effectiveness of interdisciplinary approach in managing chronic illnesses and a greater role of pharmacist is regarded as one of the key factors in optimizing drug treatment and handling issues related to drug therapy. However disparities among developed and developing health care system is posing challenges in handling medication related issues in developing world.

**Summary:** Indeed, to use medications effectively, we need to understand more precisely the realities of toxicity and the effect of these toxicities on clinical outcomes. Pharmacists are well known for their importance and effectiveness in optimizing medication therapy which in turns impact positively on patients' quality of life.

**Keywords:** HIV & AIDS, Health related quality of life, Adverse drug reactions.

Ingle P, Patil PH, Lathi V. Study of rational prescribing and dispensing of prescriptions with nonsteroidal anti-inflammatory drugs in orthopedic outpatient department. *Asian Journal of Pharmaceutical and Clinical Research*, 2015; 8(4): 278-281. (ISI IF: 3.98; SCI IF: 0.742; H-Index: 13; Tier: Q2).

## **Study of rational prescribing and dispensing of prescriptions with nonsteroidal anti-inflammatory drugs in orthopedic outpatient department.**

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### **Abstract**

**Objective:** To study the prescribing pattern of non-steroidal anti-inflammatory drugs (NSAIDs) in outpatient orthopedic hospitals from a rural area of Maharashtra, India.

**Methods:** A total of 237 prescriptions containing NSAIDs evaluated for their distribution according to the classification of NSAIDs and World Health Organization core indicators for prescribing practices and patient care.

**Results:** The average number of drugs per prescription was 3.5. The average number of NSAIDs per prescription found to be 1.12. The incidence of generic prescribing was very low. The overall average consultation time and dispensing time found to be 4.5 and 1.9 minutes respectively. The percentage of drugs adequately labelled was 61.44%. Out of the 843 drugs, 267 were systemic NSAIDs, of which 50.56% and 49.43% used as monotherapy and fixed dose combinations respectively. The prescriptions are containing either one or two NSAIDs. Non-selective NSAIDs most commonly prescribed than selective cyclooxygenase-2 (COX2) inhibitors and highly selective COX2 inhibitors. The ratio of non-selective to selective NSAID usage pattern was 1:1.28.

**Conclusion:** The study shows more use of traditional NSAIDs and underutilization of COX2 inhibitors. The study suggests that there is the immense scope of improvement for prescribing in the hospitals.

**Keywords:** Prescribing pattern of non-steroidal anti-inflammatory drugs, Rational use of non-steroidal anti-inflammatory drugs, World Health Organization core drug use indicators.

Iqbal MA, Md S, Mustafa G, Kumar M, Baboota S, Sahni JK, Ali J. Formulation, optimization and evaluation of nanostructured lipid carrier system of acyclovir for topical delivery. *Journal of Bionanoscience*, 2014, 8: 1–13. (SCI IF: 0.775; H-Index: 5; Tier: Q4).

## **Formulation, optimization and evaluation of nanostructured lipid carrier system of acyclovir for topical delivery.**

M. A. Iqbal<sup>1</sup>, Shadab Md<sup>1,2</sup>, Gulam Mustafa<sup>1,3</sup>, Manish Kumar<sup>4</sup>, Sanjula Baboota<sup>1</sup>, J. K. Sahni<sup>1,3</sup>, and Javed Ali<sup>1</sup>.

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### **Abstract**

The aim of the present study was to formulate, optimize and evaluate acyclovir (ACV)-loaded nanostructured lipid carrier (NLC). NLCs were developed using a high pressure homogenization technique. Preliminary screening of solid lipid, liquid lipid and surfactant was undertaken to prepare a stable dispersion of NLCs. The formulation of ACV-NLC was optimized by response surface methodology using the Box-Behnken design model. The prepared ACV-NLCs were evaluated for particle size, particle size distribution, polydispersity index (PDI), entrapment efficiency (EE), drug loading capacity (DL), surface morphology, in vitro release and permeation characteristics through human cadaver skin in vitro. The prepared ACV-loaded NLCs were examined by differential scanning calorimetry (DSC), X-ray diffraction (XRD), transmission electron microscopy (TEM) and scanning electron microscopy (SEM) and found to have an imperfect crystalline lattice and an almost spherical morphology. In vitro release studies revealed a biphasic release pattern of NLCs systems, comprising an initial burst release, followed by sustained release ( $69.2\pm4.12\%$ ) at 24 h. The drug release from NLCs followed first order kinetics and showed non-Fickian diffusion. Permeation studies using human cadaver skin showed ACV loaded NLC to have a greater flux and increased permeability coefficient than a conventional formulation ( $p < 0.05$ ). Confocal images revealed that dye-loaded NLCs could penetrate to the dermal layer of the skin. These results suggested that NLCs could potentially be exploited as a drug carrier for topical use.

**Keywords:** Acyclovir, Confocal Imaging, Nanostructured Lipid Carrier, Permeation Study, Surface Morphology, Topical Delivery.

Jacob A, Parolia A, Pau A, Davamani Amalraj F. The effects of Malaysian propolis and Brazilian red propolis on connective tissue fibroblasts in the wound healing process. *BMC Complementary and Alternative Medicine*, 2015; 15: 294. doi: 10.1186/s12906-015-0814-1. (ISI IF: 2.02; SCI IF: 2.376; H-Index: 48; Tier: Q1).

## **The effects of Malaysian propolis and Brazilian red propolis on connective tissue fibroblasts in the wound healing process.**

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<sup>3</sup>School of Human Biology, International Medical University, Kuala Lumpur, Malaysia.

### **Abstract**

**Background:** To evaluate and compare the effects of ethanolic extracts of Malaysian propolis and Brazilian red propolis at different concentrations on the migration and proliferation of fibroblast cells.

**Methods:** Malaysian and Brazilian red propolis crude samples were extracted using ethanol. Their wound healing effects were tested in vitro on the normal human fibroblast cell line CRL-7522. Cell migration and proliferation assays were carried out using propolis concentrations of 1, 10, 100, 250, 500 and 1000 µg/mL. The data were analyzed using one-way ANOVA and post hoc Bonferroni tests ( $\alpha = 0.05$ ).

**Results:** Malaysian and Brazilian red propolis followed a concentration-dependent increasing and decreasing trend. Malaysian propolis showed the fastest migration rate at 250 µg/mL which was statistically significant ( $p < 0.05$ ) and maximum proliferation at 500 µg/mL with no significant difference ( $p > 0.05$ ) compared to control. Brazilian red propolis showed a slight increase in migration and proliferation at 10 and 100 µg/mL, respectively with no significant difference ( $p > 0.05$ ) compared to control, while concentrations above these conferred inhibitory effects.

**Conclusion:** Malaysian and Brazilian red propolis show potential to assist in wound healing, depending on their concentration.

**Keywords:** Wound healing, Propolis, Fibroblast.

Jafarieh O, Md S, Ali M, Baboota S, Sahni JK, Bhavna, Bhatnagar A, Ali J. Design, characterization, and evaluation of intranasal delivery of ropinirole-loaded mucoadhesive nanoparticles for brain targeting. *Drug Development and Industrial Pharmacy*, 2014; (online). DOI: 10.3109/03639045.2014.991400. (SCI IF: 1.887; H-Index: 60; Tier: Q2).

## **Design, characterization, and evaluation of intranasal delivery of ropinirole-loaded mucoadhesive nanoparticles for brain targeting.**

Omidreza Jafarieh<sup>1</sup>, Shadab Md<sup>1,2</sup>, Mushir Ali<sup>1</sup>, Sanjula Baboota<sup>1</sup>, J. K. Sahni<sup>1,3</sup>, Bhavna Kumari<sup>1,4</sup>, Aseem Bhatnagar<sup>5</sup>, and Javed Ali<sup>1</sup>.

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<sup>5</sup>Department of Radiopharmaceuticals, Institute of Nuclear Medicine and Allied Sciences (INMAS), New Delhi, India

### **Abstract**

**Context:** Parkinson disease (PD) is a common, progressive neurodegenerative disorder, characterized by marked depletion of striatal dopamine and degeneration of dopaminergic neurons in the substantia nigra.

**Objective:** The purpose of the present study was to investigate the possibility of targeting an anti-Parkinson's drug ropinirole (RH) to the brain using polymeric nanoparticles.

**Materials and methods:** Ropinirole hydrochloride (RH)-loaded chitosan nanoparticles (CSNPs) were prepared by an ionic gelation method. The RH-CSNPs were characterized for particle size, polydispersity index (PDI), zeta potential, loading capacity, entrapment efficiency in vitro release study, and in vivo distribution after intranasal administration.

**Results and discussion:** The RH-CSNPs showed sustained release profiles for up to 18 h. The RH concentrations (% Radioactivity/g) in the brain following intranasal administration (i.n.) of RH-CSNPs were found to be significantly higher at all the time points compared with RH solution. The concentration of RH was highest in the liver ( $7.210 \pm 0.52$ ), followed by kidneys ( $6.862 \pm 0.62$ ), intestine ( $4.862 \pm 0.45$ ), and lungs ( $4.640 \pm 0.92$ ) in rats following i.n. administration of RH-CSNPs. Gamma scintigraphy imaging in rats was performed to ascertain the localization of drug in the brain following intranasal administration of formulations. The brain/blood ratios obtained ( $0.251 \pm 0.09$  and  $0.386 \pm 0.57$  of RH (i.n.) and RH-CSNPs (i.n.), respectively) at 0.5 h are indicative of direct nose to brain transport, bypassing the blood-brain barrier (BBB).

**Conclusion:** The novel formulation showed the superiority of nose to brain delivery of RH using mucoadhesive nanoparticles compared with other delivery routes reported earlier.

**Keywords:** Brain targeting, biodistribution, gamma scintigraphy, nanoparticles, Parkinson's disease.

Jeevanandam J, Danquah MK, Debnath S, Meka VS, Yen San, Chan S. Opportunities for nano-formulations in type 2 diabetes mellitus treatments. *Current Pharmaceutical Biotechnology*, 2015; 16(10): 853-870. DOI: 10.2174/138920101666150727120618. (ISI IF: 1.95; SCI IF: 2.256; H-Index: 54; Tier: Q1).

## **Opportunities for nano-formulations in type 2 diabetes mellitus treatments.**

Jaison Jeevanandam, Michael K. Danquah, Sujan Debnath, Venkata S. Meka and Yen S. Chan.

Department of Chemical Engineering, Faculty of Engineering and Science, Curtin University CDT 250, 98009, Miri, Sarawak, Malaysia.

### **Abstract**

Diabetes mellitus has been a threat to humans for many years. Amongst the different diabetes types, type 2 diabetes mellitus is the most common, and this is due to drastic changes in human lifestyle such as lack of exercise, stressful life and so on. There are a large number of conventional treatment methods available for type 2 diabetes mellitus. However, most of these methods are curative and are only applicable when the patient is highly symptomatic. Effective treatment strategies should be geared towards interfering with cellular and bio molecular mechanisms associated with the development and sustenance of the disease. In recent years, research into the medical potential of nanoparticles has been a major endeavor within the pharmaceutical industries. Nanoparticles display unique and tuneable biophysical characteristics which are determined by their shape and size. Nanoparticles have been used to manifest the properties of drugs, and as carriers for drug and vaccine delivery. Notwithstanding, there are further opportunities for nanoparticles to augment the treatment of a wide range of life threatening diseases that are yet to be explored. This review article seeks to highlight the application of potential nanoformulations in the treatment of type 2 diabetes mellitus. In addition, the activity of nanomedicine supplements in reversing insulin resistance is also discussed.

**Keywords:** Diabetes, insulin therapy, magnesium oxide, nanoparticles, nanomedicine.

Jogad N, Patil PG, Gade V, Patil S. Alternative technique for handling indirect restorations during evaluation and cementation. *Journal of Prosthetic Dentistry*, 2015; doi: 10.1016/j.prosdent.2015.04.005. [Epub ahead of print]. (SCI IF: 1.448; H-Index: 77; Tier: Q1).

## **Alternative technique for handling indirect restorations during evaluation and cementation.**

Nitin Jogad<sup>1</sup>, Pravinkumar G. Patil<sup>2</sup>, Vandana Gade<sup>3</sup>, Sanjay Patil<sup>4</sup>.

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<sup>4</sup>Professor, Department of Conservative Dentistry and Endodontics, SDKS Dental College and Hospital, Nagpur, India.

### **Abstract**

Inlays, onlays, and porcelain veneers are small, fragile, and prone to accidental swallowing by the patient during the evaluation or cementation procedure. Evaluation of restoration fit and restoration placement also are challenging tasks. Once these restorations are fitted into the cavity preparation, they may be difficult to remove, especially class I inlays. Some clinicians have advocated special carrying devices (Optrastick; Ivoclar Vivadent), sticky wax, or dental adhesive. An alternative technique for handling the restorations with the help of a microbrush tip and composite resin is proposed. This technique facilitates easy removal of these restorations from the prepared cavities during evaluation and cementation.

Junaid A, Deb PK, Ooi IH, El-Rabie D, Shuaib FO, Rajasingam R. Design, synthesis and pharmacological properties peptidomimetics: A review. *Asian Journal of Chemistry*, 2015; 27(9): 3137-3142. [IMU MAPC grant]. (SCI IF: 0.383; H-Index: 23; Tier: Q3).

## **Design, synthesis and pharmacological properties peptidomimetics: A review.**

Ahmad Junaid<sup>1</sup>, Pran Kishore Deb<sup>2</sup>, Ing Hong Ooi<sup>2</sup>, Dina El-Rabie<sup>1</sup>, Faridah Olubunmi Shuaib<sup>1</sup> and Rajakumari Rajasingam<sup>1</sup>.

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### **Abstract**

Peptidomimetics represent a unique class of future therapeutics with many potential applications in modern medicine. By structurally and functionally mimicking the key characteristics of endogenous peptides, various structural variants of peptidomimetics are designed, synthesized and evaluated for numerous biological activities. Advances in the area of drug design through peptidomimetics have resulted in many therapeutically potential candidates in preclinical as well as clinical trials. This review covers the strategies for the design, syntheses and applications of peptidomimetics.

**Keywords:** Peptidomimetics, Natural peptides.

Kaki VR, Akkinepalli RR, Deb PK, Pichika MR. Basic ionic liquid [bmIm]OH-mediated Gewald reaction as green protocol for the synthesis of 2-Aminothiophenes. *Synthetic Communications*, 2015; 45 (1): 119-126. DOI: 10.1080/00397911.2014.951898. (SCI IF: 1.101; H-Index: 55; Tier: Q3).

## **Basic ionic liquid [bmIm]OH-mediated Gewald reaction as green protocol for the synthesis of 2-Aminothiophenes.**

Venkata Rao Kaki<sup>1</sup>, Raghuram Rao Akkinepalli<sup>2</sup>, Prankishore Deb<sup>1</sup>, Mallikarjuna Rao Pichika<sup>1</sup>.

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<sup>2</sup>Pharmaceutical Chemistry Division, University College of Pharmaceutical Sciences, Kakatiya University, Warangal, A. P. India – 506009.

### **Abstract**

All the reagents used were as purchased without purification. Solvents used for reactions were dried according to standard methods. Melting points were recorded in open capillaries on Casiaa Siamea (VMP-AM) melting point apparatus and are uncorrected. IR spectra were recorded on a Perkin Elmer FT-IR 240-C spectrophotometer using KBr discs. <sup>1</sup>H NMR and <sup>13</sup>C NMR spectra were recorded on Bruker Avance II (400 MHz and 100 MHz respectively) spectrometer in DMSO-d6 or CDCl<sub>3</sub> using TMS as internal standard. Mass spectra (ESI) were recorded on Waters Micromass Q-TOF Micro. All the reactions were monitored by thin layer chromatography (TLC) on precoated silica gel 60 F254 (mesh) (E. Merck, Mumbai) and spots were visualized under UV light (254 nm).

Kavana NJ, Lim LHS, Ambu S. The morphological characteristics of the sparganum stage of the Malaysian *Spirometra* species. *IeJSME*, 2015; 9(2): 22-24. (MyCite IF: 0.038).

## **The morphological characteristics of the sparganum stage of the Malaysian *Spirometra* species.**

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<sup>3</sup>Institute for Research Development and Innovation, International Medical University, Kuala Lumpur, MALAYSIA

### **Abstract**

**Background:** The present study describes the morphology of sparganum (larva) of the Malaysian *Spirometra* spp. collected from naturally infected frogs (*Rana cancrivora*) from rice fields in Tanjung Karang, Malaysia.

**Materials and Methods:** Spargana of *Spirometra* spp. collected from naturally infected frogs (*Rana cancrivora*) were used for the morphological studies. Stretched on a metal ruler, measurements of the worm were recorded. Specimens were stained in Alum-carmine.

**Results:** The length of the body ranged from 11-50 mm and the width ranged from 0.5-1.5 mm. Specimens stained with Alum-carmine showed ridges (formation of segments) on the surface of the body, and no sexual organs in the body.

**Conclusion:** The Malaysian *Spirometra* spp. are similar in measurement and morphology to *Spirometra erinacei* but further studies are required for confirmation.

**Keywords:** *Spirometra*, spargana, scolex, body, morphology.

Kesharwani P, Tekade RK, Jain NK. Dendrimer generational nomenclature: The need to harmonize. *Drug Discovery Today*, 2015; 20: 497-499. (ISI IF: 3.850; SCI IF: 3.853; H-Index: 103; Tier: Q1).

## Dendrimer generational nomenclature: The need to harmonize.

Prashant Kesharwani<sup>1,2</sup>, Rakesh K. Tekade<sup>3,4</sup>, Narendra K. Jain<sup>5</sup>.

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### Abstract

During the early 1980s, Donald A. Tomalia from the University of Michigan discovered a unique 3D nano-architect providing a well-defined globular architect that he called 'Dendrimer'. Dendrimers are monodispersed, exceedingly branched macromolecules obtained by an iterative sequence of reaction steps. They are strategically more useful compared with other nanoconstructs because they can be fine-tuned to generate highly monodispersed systems with good control over their final size and surface functionality. Dendrimers are nanometric in size range and can be synthesized with a high level of control. The largest dendrimers (<5 nm) are smaller than most cellular organelles, whereas the smallest dendrimers are smaller than even the smallest of viruses. Structurally, a dendrimer comprises three distinct domains; that is, a central core, branches, and terminal functional groups. The core comprises a single atom or an atomic group having at least two identical chemical functions, whereas branches, which originate from the core, encompass repeat units having at least one branch junction, whose repetition is controlled in a geometrical succession that leads to a series of radially concentric layers called 'generations'. With each repetition, a subsequent generation is formed with an exponential increase in the number of end groups. Increasing dendrimer generation results in them spreading out radially to adopt a globular form. The number of functional surface groups is an important determinant of the properties of the dendrimer. The functional groups available on the surface of dendrimers are modifiable and, hence, can be specifically tailored to suit various biomedical applications. This makes them an ideal drug carrier for clinical use.

Kesharwani P, Tekade RK, Jain NK. Generation dependent safety and efficacy of folic acid conjugated dendrimer based anticancer drug formulations. *Pharmaceutical Research*, 2015; 32: 1438-50. (ISI IF: 3.420; SCI IF: 3.573; H-Index: 152; Tier: Q1).

## **Generation dependent safety and efficacy of folic acid conjugated dendrimer based anticancer drug formulations.**

Prashant Kesharwani<sup>1</sup>, Rakesh K. Tekade<sup>2</sup>, Narendra K. Jain<sup>1</sup>.

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<sup>2</sup>Department of Pharmaceutical Technology, School of Pharmacy International Medical University, Jalan Jalil Perkasa 19, 57000 Kuala Lumpur, Malaysia

### **Abstract**

**Purpose:** Folate conjugated poly(propyleneimine) (PPI) dendrimer (FPPI) mediated anticancer therapy is being extensively discovered throughout the world. The present investigation was aimed at exploring the targeting potential of Melphalan loaded FPPI of different generations (MP-FPPI) for effective management of cancer.

**Methods:** The MP-FPPI formulations were compared for drug entrapment efficiency, in vitro release profile, toxicology, folate receptor blockage assay, cell uptake assay, stability studies, and in vivo studies.

**Results:** Upon increasing the dendrimer generation from fourth to fifth, the drug delivery parameters improved negligibly except the toxicological profile that improved exponentially. MTT assay in case of MCF-7 cells depicted the IC<sub>50</sub> values of 8±0.15, 0.9±0.02, 0.2±0.01 and 10±0.17 μM, respectively in case of MPFPPI3, MP-FPPI4, MP-FPPI5, and free Melphalan suggesting folate based targeting to be the efficacious approach to kill cancer cells. The median survival time for tumor bearing mice treated with MP-FPPI3, MP-FPPI4, MP-FPPI5 and free drug was found to be 23, 59, 62 and 26 days, respectively.

**Conclusions:** The study concludes fourth generation PPI dendrimer to be superior carrier for folate based tumor targeting compared to third and fifth generation based formulations. This work is expected to provide a significant clue in the selection of “dendrimer generation” for folate mediated cancer targeting therapy.

**Keywords:** dendrimer generation, folate conjugation, toxicity, tumor targeting.

Khadija A, Sami ARA, Reema A, Aamenah H, Mustafa A, Saba K. Prevalence and associated factors of hepatitis C virus infection among renal disease patients on maintenance hemodialysis in three health centers in Aden, Yemen: A cross sectional study. *Saudi Journal of Kidney Diseases and Transplantation*, 2015; 26(2): 380-385. (SCI IF: 0.78; H-Index: 16; Tier: Q2).

**Prevalence and associated factors of hepatitis C virus infection among renal disease patients on maintenance hemodialysis in three health centers in Aden, Yemen: A cross sectional study.**

Khadija Aman<sup>1</sup>, Sami Abdo Radman Al-Dubai<sup>2</sup>, Reema Aman<sup>3</sup>, Aamenah Hawash<sup>4</sup>, Mustafa Alshagga<sup>5</sup>, Saba Kassim<sup>4</sup>.

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<sup>5</sup>Faculty of Medicine and Health Sciences, Nottingham University Malaysia Campus, Jalan Broga, Semenyih, Selangor Darul Ehsan, Malaysia

**Abstract**

We aimed to assess the prevalence and factors associated with positive antihepatitis C virus (HCV) antibodies among patients on maintenance hemodialysis (HD) in three centers in Aden, Yemen. The data from 219 patients and their records over the period between 2000-2013, was extracted and analyzed. The mean  $\pm$  SD age of the patients was  $47.08 \pm 13.9$  years; 74.4% of them were married and 14.6% were employed. The prevalence of validated anti-HCV-positive cases was 40.2% (95%CI 33.64%-46.73%). The mean  $\pm$  SD duration on HD of all the patients was  $35.09 \pm 38$  months. On bivariate analysis, the duration on HD and attending more than one center for HD associated significantly with anti-HCV positivity ( $P < 0.05$ ). On multivariate fully adjusted Poisson regression modelling, controlled for age, Patients attending more than one center and those who underwent HD for longer durations were more likely to be positive for anti- HCV antibodies [ $P = 0.004$ , adjusted prevalence rate ratio (APRR) = 1.87, 95% confidence interval (CI): 1.22-2.88;  $P = 0.0005$ , APRR = 1.01, 95% CI: 1.00-1.02]. In this study sample, the prevalence of HCV was significant. Patients attending more than one center and those who underwent HD for longer durations were found to be more likely to contract HCV. Enhancing existing infection control measures and allocating more resources to HD centers therefore warrants consideration.

Khor GL, Shariff ZM, Sariman S, Huang SLM, Mohamad M, Chan YM, Chin YS, Yusof BNM. Milk drinking patterns among Malaysian urban children of different household income status. *Journal of Nutrition and Health Sciences*, 2014; 1(4): 405. (IF: NA).

## **Milk drinking patterns among Malaysian urban children of different household income status.**

Khor GL<sup>1</sup>, Shariff ZM<sup>2</sup>, Sariman S<sup>3</sup>, Huang SLM<sup>2</sup>, Mohamad M<sup>1</sup>, Chan YM<sup>2</sup>, Chin YS<sup>2</sup> and Yusof BNM<sup>2</sup>.

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### **Abstract**

**Background:** Milk consumption is popular in Malaysia especially among the younger ages. Nonetheless, there is a lack of quantitative data on milk consumption by children in Malaysia.

**Methods:** A cross-sectional study was undertaken on a sample of 749 children aged 1-10 years in the metropolitan areas of Kuala Lumpur. Approximately similar proportions of children were selected from low, middle and high household income categories. Socioeconomic background, dietary intake based on 24-hour recall and food records, were obtained for each child. Over the decades, milk production in Asian countries has grown five folds since the early 1970s, exceeding 265 million tons in 2011 [4]. The Food and Agriculture Organization 65 (FAO) projects that the strongest gains in dairy production and consumption over the coming 66 decade will take place in Asia. In the Southeast Asian region, Malaysia ranked among the highest per capita consumption at 36.2 kg/person/year in 2009, compared with Thailand (21.8 68 kg/person/year) and the Philippines (13.2 kg/person/year). Owing to a lack of quantitative data on milk drinking among Malaysian children, a study was conducted in 2011-2012 with the objectives of (i) determining the amounts and types of milk consumed by children aged 1-10 years; (ii) comparing the amounts of milk consumed by the children with the recommendation of the Malaysian Dietary Guidelines for 73 Children and Adolescents of the Ministry of Health (MOH); and (iii) comparing the amounts of milk consumed by the different age groups from low to high household income categories.

**Results:** Prevalence of milk drinking was highest among aged 1-3 years (90.6%) followed by 86.1% aged 4-6 years, and 73.7% among ages 7-10 years. The youngest age group consumed averagely 3.5 (3.1 – 3.8) cups (200ml/cup) of milk daily, exceeding the recommendation of 2-3 cups a day by the Ministry of Health, Malaysia. There were no significant differences in the mean amounts of milk consumed among ages 1-3 years from low to high income categories. Children aged 4-6 years consumed, on average, 2.2 (1.9 – 2.4) cups/day, which is within the MOH recommendation, while that for ages 7-10 years, at 1.07 (0.9–1.2) cups/day, is below the recommendation.

**Conclusion:** Parents of young children should be advised on the nutritional importance of providing foods from a variety of sources, so that the children obtain the right balance and mix of nutrients for optimum growth.

**Keywords:** Milk; Child; Parents; Malaysia.

Kingston R, Mari Kannan M, Chin SN, Num KSF. Awareness and acceptance of human papillomavirus vaccination among health sciences students in Malaysia. *Virus Disease*, 2015; 26(4): 297–303. Doi: 10.1007/s13337-015-0287-3. [IMU BPharm Sem 7 Project BP –I-01/11/(28) 2014]. (ISI IF: 0.364).

## **Awareness and acceptance of human papillomavirus vaccination among health sciences students in Malaysia.**

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<sup>2</sup>Department of Nutrition and Dietetics, School of Health Sciences, International Medical University, 57000 Kuala Lumpur, Malaysia

### **Abstract**

The major cause of cervical cancer is human papillomavirus (HPV) for which vaccination is available. The success HPV vaccination programme largely depend on the degree of knowledge of the healthcare providers who can recommend to the public. Health sciences students as future healthcare providers play a major role in HPV vaccination initiatives. The objective of this study was to evaluate the knowledge, attitude, practice and to find out the willingness to pay for HPV vaccination among the health sciences students in a private university. The cross-sectional study was conducted among the university students studying health sciences program using a validated questionnaire to measure their awareness and acceptance of HPV vaccination. The students demonstrated moderate knowledge about HPV infection and vaccination with mean knowledge scores of 9.3 out of 17. Students were showing positive attitude towards HPV vaccination with mean scores of 3.80 out of 5. However, low HPV vaccination uptake rate was reported among the students. Most of the students were willing to recommend HPV vaccine. The participants felt that the cost is the major barrier towards HPV vaccination and they felt the government should cover the cost of vaccination for all. The results of this study may be helpful in establishing educational policies on cervical cancer-related topics in the universities.

**Keywords:** Cervical cancer, Willingness to pay, Pap smear test, HPV, College students.

Koh RY, Lim CL, Uhal BD, Abdullah M, Vidyadaran S, Ho CC, Seow HF. Inhibition of transforming growth factor- $\beta$  via the activin receptor-like kinase-5 inhibitor attenuates pulmonary fibrosis. *Molecular Medicine Reports*, 2015; 11: 3808-3813. (SCI IF: 1.578; H-Index: 14; Tier: Q3).

## **Inhibition of transforming growth factor- $\beta$ via the activin receptor-like kinase-5 inhibitor attenuates pulmonary fibrosis.**

Rhun Yian Koh<sup>1,2</sup>, Chooi Ling Lim<sup>1,2</sup>, Bruce David Uhal<sup>3</sup>, Maha Abdullah<sup>1</sup>, Sharmili Vidyadaran<sup>1</sup>, Coy Choke Ho<sup>4</sup>, and Heng Fong Seow<sup>1</sup>.

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<sup>4</sup>Biotechnology Programme, School of Science and Technology, University Malaysia Sabah, Sabah 88400, Malaysia

### **Abstract**

Idiopathic pulmonary fibrosis is a chronic pulmonary disease that is characterized by formation of scar tissue in lungs. Transforming growth factor- $\beta$  (TGF- $\beta$ ) is considered an important cytokine in the pathogenesis of this disease. Hence, the antifibrotic effect of an inhibitor of the TGF- $\beta$  type I receptor, namely, SB 431542, was investigated in our study. SB 431542 was used to treat TGF- $\beta$ -treated IMR-90 cells; the expression of  $\alpha$ -smooth muscle actin ( $\alpha$ -SMA) was detected at the protein level by using an anti- $\alpha$ -SMA antibody, and at the gene level by reverse transcription-quantitative PCR. The effect of the inhibitor on cell proliferation was determined by a cell growth assay. The inhibitor was also administered into bleomycin-treated mice. Histopathological assessment and determination of total collagen levels were carried out to evaluate the severity of lung fibrosis in these mice. Our results demonstrated that treatment with SB 431542 inhibits TGF- $\beta$ -induced  $\alpha$ -SMA expression in lung fibroblasts, at both the protein and the mRNA levels ( $P<0.05$ ). However, the inhibitor did not significantly reduce lung fibroblast proliferation. In the bleomycin-induced pulmonary fibrosis mouse model, bleomycin treatment caused important morphological changes, accompanied by an increase in the collagen level of the lungs. Early treatment with SB 431542 prevented the manifestation of histopathological alterations, whereas delayed treatment significantly decreased the collagen level ( $P<0.05$ ). These results suggest that inhibition of TGF- $\beta$  signaling, via inhibition of the activin receptor-like kinase-5 (ALK-5) by SB 431542, may attenuate pulmonary fibrosis.

**Keywords:** activin receptor-like kinase-5,  $\alpha$ -smooth muscle actin, idiopathic pulmonary fibrosis, transforming growth factor- $\beta$ .

Koh RY, Sim YC, Toh HJ, Liam LK, Ong RZL, Yew MY, Tiong YL, Ling APK, Chye SM, Ng KY. Cytotoxic and apoptogenic effects of *Strobilanthes crispa* Blume extracts on nasopharyngeal cancer cells. *Molecular Medicine Reports*, 2015; 12: 6293-6299. [IMU Internal Grant -BPharm B0108\_Res082011]. (SCI IF: 1.599; H-Index: 19; Tier: Q3).

## **Cytotoxic and apoptogenic effects of *Strobilanthes crispa* Blume extracts on nasopharyngeal cancer cells.**

Rhun Yian Koh<sup>1</sup>, Yi Chi Sim<sup>2</sup>, Hwee Jin Toh<sup>2</sup>, Liang Kuan Liam<sup>2</sup>, Rachael Sze Lynn Ong<sup>2</sup>, Mei Yeng Yew<sup>3</sup>, Yee Lian Tiong<sup>4</sup>, Anna Pick Kiong Ling<sup>1</sup>, Soi Moi Chye<sup>1</sup>, Khuen Yen Ng<sup>3</sup>.

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<sup>2</sup>School of Pharmacy and Health Sciences, International Medical University, Kuala Lumpur 57000;

<sup>3</sup>Jeffrey Cheah School of Medicine and Health Sciences, Monash University Malaysia, Bandar Sunway, Selangor 47500;

<sup>4</sup>School of Postgraduate Studies and Research, International Medical University, Kuala Lumpur 57000, Malaysia

### **Abstract**

The chemotherapeutic agents used to treat nasopharyngeal cancer (NPC) exhibit low efficacy. *Strobilanthes crispa* Blume is widely used for its anticancer, diuretic and anti-diabetic properties. The present study aimed to determine the cytotoxic and apoptogenic effects of *S. crispa* on CNE-1 NPC cells. A 3-(4,5-dimethylthiazol-2-yl)-2,5 diphenyl tetrazolium bromide assay was used to evaluate the cytotoxic effects of *S. crispa* against CNE-1 cells. The rate of apoptosis was determined using propidium iodide staining and caspase assays. Ethyl acetate, hexane and chloroform extracts of *S. crispa* leaves all exhibited cytotoxic effects on CNE-1 cells, at a half maximal inhibitory concentration (IC50) of 119, 123.5 and 161.7 µg/ml, respectively. In addition, hexane, chloroform and ethyl acetate extracts of *S. crispa* stems inhibited CNE-1 cell proliferation, at a IC50 of 49.4, 148.3 and 163.5 µg/ml, respectively. Flow cytometric analysis revealed an increased proportion of cells in the sub G1 phase and a decreased proportion of cells in the G2/M phase, following treatment with the extracts. However, the extracts did not alter the activities of caspase -3/7, -8 and -9. No cytotoxic effect was observed when the cells were treated with the methanol and water extracts of *S. crispa* stems and leaves. In conclusion, the *S. crispa* extracts were cytotoxic against CNE-1 cells and these extracts were able to induce apoptosis, independent of caspase activation.

**Keywords:** apoptosis, cytotoxicity, *Strobilanthes crispa* Blume, nasopharyngeal cancer.

Kwa SK, Gupta ED. Cicatricial alopecia – A case study. *Australian Family Physician*, 2015; 44(7): 476-478. (SCI IF: 0.727; H-Index: 29; Tier: Q2).

## **Cicatricial alopecia – A case study.**

Siew Kim Kwa<sup>1</sup>, Esha Das Gupta<sup>2</sup>.

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<sup>2</sup>Department of Internal Medicine, International Medical University, Seremban, Malaysia

### **Abstract**

A woman, 30 years of age, presented with patchy hair loss on her head. It started 1 year ago when she developed an itchy, slightly painful, red scaling rash on her scalp 1 month after she dyed her hair. She had been treated with antifungal and other treatments unknown to her by several primary care doctors. However, the lesion worsened, and new lesions appeared. She was referred to a dermatologist. Aside from the devastating psychological effects from the disfigurement and the effect on her occupation as a cosmetics sales promoter, she had no other symptoms. There was no significant past or family history. She did not smoke, but her husband smoked heavily in the house. An examination of the scalp revealed focal coin-shaped, scaly, erythematous lesions, some of which had coalesced (Figure 1). Closer examination revealed shiny, central hypopigmentation and absence of hair follicles, and some thickened areas of hyperpigmentation peripherally. Where there were no lesions, her hair was black, thick, straight and long. At the periphery of the lesions, her hair became sparse and thin. A full examination of her face, neck, body and nails revealed no other skin lesions.

Lai PSM, Sim SM, Chua SS, Tan CH, Ng CJ, Achike FI, Teng CL. Development and validation of an instrument to assess the prescribing readiness of medical students in Malaysia. *BMC Medical Education*, 2015; 15(1): 153. [University of Malaya Research Grant] (ISI IF: 1.22; SCI IF: 1.297; H-Index: 34; Tier: Q1).

## **Development and validation of an instrument to assess the prescribing readiness of medical students in Malaysia.**

Pauline Siew Mei Lai<sup>1</sup>, Si Mui Sim<sup>2</sup>, Siew Siang Chua<sup>3</sup>, Choo Hock Tan<sup>2</sup>, Chirk Jenn Ng<sup>1</sup>, Francis Ifejika Achike<sup>4,5</sup>, and Cheong Lieng Teng<sup>4</sup>.

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<sup>3</sup>Department of Pharmacy, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

<sup>4</sup>Division of Clinical Science, School of Medicine and Allied Health Sciences, International Medical University, 57000 Kuala Lumpur, Malaysia.

<sup>5</sup>Central Michigan University College of Medicine, Mount Pleasant, MI 48859, USA.

### **Abstract**

**Background:** Prescribing incompetence is an important factor that contributes to prescribing error, and this is often due to inadequate training during medical schools. We therefore aimed to develop and validate an instrument to assess the prescribing readiness of medical students (PROMS) in Malaysia.

**Methods:** The PROMS comprised of 26 items with four domains: undergraduate learning opportunities; hands-on clinical skills practice; information gathering behaviour; and factors affecting the learning of prescribing skills. The first three domains were adapted from an existing questionnaire, while items from the last domain were formulated based on findings from a nominal group discussion. Face and content validity was determined by an expert panel, pilot tested in a class of final year (Year 5) medical students, and assessed using the Flesch reading ease. To assess the reliability of the PROMS, the internal consistency and test-retest (at baseline and 2 weeks later) were assessed using the Wilcoxon Signed Ranks test and Spearman's rho. The discriminative validity of the PROMS was assessed using the Mann–Whitney U-test (to assess if the PROMS could discriminate between final year medical students from a public and a private university).

**Results:** A total of 119 medical students were recruited. Flesch reading ease was 46.9, indicating that the instrument was suitable for use in participants undergoing tertiary education. The overall Cronbach alpha value of the PROMS was 0.695, which was satisfactory. Test-retest showed no difference for 25/26 items, indicating that our instrument was reliable. Responses from the public and private university final year medical students were significantly different in 10/26 items, indicating that the PROMS was able to discriminate between these two groups. Medical students from the private university reported fewer learning opportunities and hands-on practice compared to those from the public university. On the other hand, medical students from the private university reported more frequent use of both web based and non-web-based resources compared to their public university counterparts.

**Conclusions:** The PROMS instrument was found to be a reliable and valid tool for assessing medical students' readiness to prescribe in Malaysia. It may also inform on the adequacy of medical programmes in training prescribing skills.

Lakshman AR, Kanneppady SK, Castelino RL, Balan P. Role of dental physician in Marfan syndrome. *Archives of Medicine and Health Sciences*, 2015; 3: 110-2. (IF: NA).

## **Role of dental physician in Marfan syndrome.**

Anusha Rangare Lakshman<sup>1</sup>, Sham Kishor Kanneppady<sup>1</sup>, Renita Lorina Castelino<sup>2</sup>, Preethi Balan<sup>2</sup>.

<sup>1</sup>Department of Oral Medicine and Radiology, Century International Institute of Dental Science and Research Centre, Poinachi, Kasaragod, Kerala,

<sup>2</sup>Department of Oral Medicine and Radiology, A.B Shetty Memorial Institute of Dental Sciences and Hospital, Deralakatte, Mangalore, India

### **Abstract**

Marfan syndrome (MFS) is a variable, autosomal dominant disorder of connective tissue whose cardinal features affect the cardiovascular system, eyes, and skeleton. The patient's prognosis depends on the severity of cardiovascular complications and is mainly determined by progressive dilation of the aorta. If signs of MFS are recognized, it is important to refer to the correct health care professional for further testing to prevent associated complications. Hereby, we report a case of MFS who was unaware about the cardiac manifestations, thereby emphasizing the importance in identifying this potentially life-threatening condition in dental practice.

**Keywords:** Aortic regurgitation, hypermobility, Marfan syndrome.

Latha K, Meka VS, Songa S, Murthy KVR. Applicability of gum karaya in the preparation and in vitro evaluation of losartan potassium as chronotherapeutic drug delivery system. *Journal of Scientific Research*, 2015; 7(1-2): 65-74. (IF: NA).

## **Applicability of gum karaya in the preparation and in vitro evaluation of losartan potassium as chronotherapeutic drug delivery system.**

K. Latha<sup>1</sup>, V. V. Srikanth<sup>2</sup>, S. A. Sunil<sup>2</sup>, N. R. Srinivasa<sup>2</sup>, M. U. Uhumwangho<sup>3</sup>, N. B. Shaik<sup>1</sup>, K. V. R. Murthy<sup>2</sup>.

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<sup>2</sup>University College of Pharmaceutical Sciences, Andhra University, Visakhapatnam-530003, A.P., India

<sup>3</sup>Department of Pharmaceutics and Pharmaceutical Technology, Faculty of Pharmacy, University of Benin, Nigeria

### **Abstract**

The objective of this investigation is to study the applicability of gum karaya, the natural gum for the preparation and in vitro evaluation of losartan potassium, as Chronotherapeutic Drug Delivery System (ChDDS). The compression-coated timed-release tablets (CCT) containing losartan potassium in the core tablet were prepared by dry coating technique with different ratios of gum karaya as the outer coat. The parameters investigated were tensile strength, friability, in vitro dissolution studies and drug concentration. The optimized formulation was further characterized by powder XRD and FTIR to investigate interactions and no interactions observed. The tensile strength and friability of all the CCT were between 1.06-1.23 MN/m<sup>2</sup> and < 0.3% respectively. All the CCT showed a clear lag time before a burst release of drug. However, the lag time of drug release increased as the amount of gum karaya in the outer layer increased. For instance, the lag time of LGK1, LGK2, LGK3, LGK4, LGK5, LGK6 and LGK7 were 16, 10.5, 5.5, 3, 2, 1.5 and 0.5 hrs respectively. The drug content of all the CCT was >98%. Formulation LGK3 was taken as an optimized formulation which can be exploited to achieve ChDDS of losartan potassium for the treatment of hypertension.

**Keywords:** Losartan potassium; Compression coated timed release tablet; Gum karaya; Powder X-ray diffraction; Fourier-Transform Infrared Spectroscopy.

Laxminarayan K, Barua A, Kanagasabai S, Sreekumar N. Desmopressin acetate (DDAVP) for preventing and treating acute bleeds during pregnancy in women with congenital bleeding disorders. status and date: New search for studies and content updated (no change to conclusions), published in 9(2015). (IF: NA).

## **Desmopressin acetate (DDAVP) for preventing and treating acute bleeds during pregnancy in women with congenital bleeding disorders.**

Laxminarayan Karanth<sup>1</sup>, Ankur Barua<sup>2</sup>, Sachchithanantham Kanagasabai<sup>1</sup>, N S Nair<sup>3</sup>.

<sup>1</sup>Department of Obstetrics and Gynecology, Melaka Manipal Medical College, Melaka, Malaysia.

<sup>2</sup>Department of Community Medicine, International Medical University (IMU), Kuala Lumpur, Malaysia.

<sup>3</sup>Department of Statistics, Manipal University, Manipal, India

### **Abstract**

**Background:** Congenital bleeding disorders can cause obstetric haemorrhage during pregnancy, labour and following delivery. Desmopressin acetate is found to be an effective drug which can reduce the risk of haemorrhage and can also stop bleeding in certain congenital bleeding disorders. Its use in pregnancy has been controversial. Hence beneficial and adverse effects of desmopressin acetate in these groups of pregnant women should be evaluated.

**Objectives:** To determine the efficacy of desmopressin acetate in preventing and treating acute bleeds during pregnancy in women with congenital bleeding disorders.

**Search methods:** We searched the Cochrane Cystic Fibrosis and Genetic Disorders Group's Coaguopathies Trials Register comprising references identified from comprehensive electronic database searches and hand searches of relevant and abstract books of conferences proceedings. We also searched for any randomised controlled trials in a registry of ongoing trials and the reference lists of relevant articles and reviews.

Date of most recent search: 28 February 2013.

**Selection criteria:** Randomised and quasi-randomised controlled trials investigating the efficacy of desmopressin acetate versus tranexamic acid or factor VIII or rFactor VII or fresh frozen plasma in preventing and treating congenital bleeding disorders during pregnancy were eligible.

**Data collection and analysis:** No trials matching the selection criteria were eligible for inclusion.

**Main results:** No trials matching the selection criteria were eligible for inclusion.

**Authors' conclusions:** The review did not identify any randomised controlled trials investigating the relative effectiveness of desmopressin acetate for bleeding during pregnancy in women with congenital bleeding disorders. In the absence of high quality evidence, clinicians need to use their clinical judgement and lower level evidence (e.g. from observational trials) to decide whether or not to treat women with congenital bleeding disorders with desmopressin acetate.

Given the ethical considerations, future randomised controlled trials are unlikely. However, other high quality controlled studies (such as risk allocation designs, sequential design,

parallel cohort design) to investigate the risks and benefits of using desmopressin acetate in this population are needed.

Lee YL, Verma RK, Yadav H, Barua A. Health impacts of Facebook usage and mobile texting among undergraduate dental students: It's time to understand the difference between usage and an excessive use. *European Journal of Dental Education*, 2015; [IMU Internal Grant-Project ID No. B P I-01/11(47)2014]. (SCI IF: 1.02; Tier: Q2; H-Index: 25).

## **Health impacts of Facebook usage and mobile texting among undergraduate dental students: It's time to understand the difference between usage and an excessive use.**

Lee YL<sup>1</sup>, Verma RK<sup>1</sup>, Yadav H<sup>2</sup>, Barua A<sup>2</sup>.

<sup>1</sup>Department of Pharmacy Practice, School of Pharmacy, International Medical University, Kuala Lumpur, Malaysia.

<sup>2</sup>Department of Community Medicine, School of Medicine, International Medical University, Kuala Lumpur, Malaysia.

### **Abstract**

**Background:** Facebook and mobile texting are prevalent in the lives of almost every student. However, little is known about the relationship between Facebook usage or mobile texting and their impacts on health amongst undergraduate dental students. In this study, excessive Facebook use and excessive mobile texting were studied as they relate to impacts on health.

**Materials and Methods:** A cross-sectional study was conducted at a private university in Malaysia. A total of 188 undergraduate dental students were interviewed using a pre-tested and self-rated questionnaire. Data collected from participants were analysed using SPSS version 18.0. Chi-square test, Fisher's exact test and multiple logistic regression analyses were applied to study the relationship between explanatory variables and excessive Facebook use and excessive mobile texting.

**Results:** The prevalence of excessive Facebook use and excessive mobile texting amongst undergraduate dental students was found to be 33.2% and 33.0%, respectively. According to a multivariate analysis, texting habits, such as the presence of daytime sleepiness after texting late at night ( $aOR = 2.682$ , 95% CI = 1.1426.301) and the presence of anxious feelings if students failed to receive a timely response ( $aOR = 3.819$ , 95% CI = 1.5809.230), were determined to be significant predictors of excessive mobile texting. Excessive Facebook use was found to be significantly related to three variables as follows: fewer numbers of close friends ( $aOR = 2.275$ , 95% CI = 1.0574.898), the checking of updates on the Facebook walls of their friends ( $aOR = 2.582$ , 95% CI = 1.1895.605) and the absence of active and vigorous feelings during Facebook use ( $aOR = 3.401$ , 95% CI = 1.2339.434).

**Conclusions:** Approximately one-third of undergraduate dental students in this study experienced excessive Facebook use and/or excessive mobile texting. Health education and promotion should be instituted to create awareness, whilst students should be advised to practise self-control with respect to both mobile texting and Facebook usage.

**Keywords:** Facebook usage; dental students; excessive Facebook use; excessive mobile texting; mobile texting.

Lee ZY, Chuan JYF, Lim MQ, Koh ZX, Wong WHY, Ng TKW. Influence of rice and added sugar intakes on fasting plasma glucose and triacylglycerol levels amongst a population sample of Malaysian adults. *IeJSME*, 2015; (in press). (MyCite IF: 0.023).

## **Influence of rice and added sugar intakes on fasting plasma glucose and triacylglycerol levels amongst a population sample of Malaysian adults.**

Zhi Yee Lee<sup>1</sup>, Joshua Chuan Yung Foo<sup>1</sup>, Mei Qian Lim<sup>1</sup>, Zheng Xian Koh<sup>1</sup>, Wendy Hui Yi Wong<sup>1</sup>, Tony Kock Wai Ng<sup>2</sup>.

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<sup>2</sup>Department of Nutrition and Dietetics, IMU, Kuala Lumpur, MALAYSIA

### **Abstract**

**Introduction:** A recently published meta-analysis showed that each additional serving of rice increased risk of type 2 diabetes mellitus (DM) by an alarming 11%. We investigated whether this phenomenon is seen in the Malaysian population by studying the effect of rice intake and added sugar consumption on fasting plasma glucose (FPG) and fasting triacylglycerol (TAG).

**Methods:** Ninety subjects (60 females, 30 males, aged 30-70 years), adequate to detect a weak-to-moderate Pearson correlation of  $r=0.26$  at  $\alpha=0.05$  and power=0.80, were recruited by convenience sampling from six communities in the Klang Valley, Malaysia. Fasting blood samples were collected by finger-prick and analysed for FPG (AccuCek, Roche) and TAG (Accutrend, Roche). Macronutrient intakes, including rice, were obtained by a single interview using a previously-evaluated food frequency questionnaire (FFQ) and quantitated as grams by the DietPLUS V2 programme. Added sugar intakes by subjects were estimated using an Added Sugar Intake excel programme.

**Results:** Rice contributed to 85% of dietary carbohydrates, accounting for 41.8 % kcal of the average 1750- kcal diet. Rice intakes or added sugar consumption did not have a significant correlation ( $p>0.05$ ) with FPG nor fasting TAG. Added sugar consumption, which averaged 44g/person/day (5% kcal) was markedly lower than the 137g/person/day reported elsewhere for the Malaysian population.

**Conclusion:** High consumption of rice as a risk factor of type 2 DM was not indicated in the present study. Since white rice consumption varied 10-fold in the present subjects, the reduction in daily intake of this staple food represents a feasible option for cutting back on calorie intake for overweight or obese individuals.

**Keywords:** Rice intake, added sugar, fasting plasma glucose, triacylglycerol.

Liew SC, Sidhu J, Barua A. The relationship between learning preferences (styles and approaches) and learning outcomes among pre-clinical undergraduate medical students. *BMC Medical Education*, 2015; 15: 44 [IMU Internal Grant: IMU 285/2013]. (IF: 1.41; SCI IF: 1.651; H-Index: 29; Tier: Q1).

## **The relationship between learning preferences (styles and approaches) and learning outcomes among pre-clinical undergraduate medical students.**

Siaw-Cheok Liew<sup>1</sup>, Jagmohni Sidhu<sup>1</sup>, Ankur Barua<sup>2</sup>.

<sup>1</sup>Department of Clinical Skills and Simulation Centre, International Medical University, No. 126, Jalan Jalil Perkasa 19, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

<sup>2</sup>Department of Community Medicine, International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

**Background:** Learning styles and approaches of individual undergraduate medical students vary considerably and as a consequence, their learning needs also differ from one student to another. This study was conducted to identify different learning styles and approaches of preclinical, undergraduate medical students and also to determine the relationships of learning preferences with performances in the summative examinations.

**Methods:** A cross-sectional study was conducted among randomly selected 419 pre-clinical, undergraduate medical students of the International Medical University (IMU) in Kuala Lumpur. The number of students from Year 2 was 217 while that from Year 3 was 202. The Visual, Auditory Read/Write, Kinesthetic (VARK) and the Approaches and Study Skills Inventory for Students (ASSIST) questionnaires were used for data collection

**Results:** This study revealed that 343 students (81.9%) had unimodal learning style, while the remaining 76 (18.1%) used a multimodal learning style. Among the unimodal learners, a majority (30.1%) were of Kinesthetic (K) type. Among the middle and high achievers in summative examinations, a majority had unimodal (Kinesthetic) learning style (30.5%) and were also strategic深深 learners (79.4%). However, the learning styles and approaches did not contribute significantly towards the learning outcomes in summative examinations.

**Conclusions:** A majority of the students in this study had Unimodal (Kinesthetic) learning style. The learning preferences (styles and approaches) did not contribute significantly to the learning outcomes. Future work to re-assess the viability of these learning preferences (styles and approaches) after the incorporation of teaching-learning instructions tailored specifically to the students will be beneficial to help medical teachers in facilitating students to become more capable learners.

**Keywords:** Learning, Styles, Approach, Assist, Vark, Medical, Students.

Liew SC, Sow CF, Sidhu J, Nadarajah VD. The near-peer tutoring programme: Embracing the ‘doctors-to-teach’ philosophy – A comparison of the effects of participation between the senior and junior near-peer tutors. Medical Education Online, 2015; 20: 27959. DOI: <http://dx.doi.org/10.3402/meo.v20.27959>. (ISI IF: 0.833; SCI IF: 0.902; H-Index: 10; Tier: Q2). [IMU Internal Grant: IMU 281/2013].

## **The near-peer tutoring programme: Embracing the ‘doctors-to-teach’ philosophy – A comparison of the effects of participation between the senior and junior near-peer tutors.**

Siaw-Cheok Liew<sup>1</sup>, Chew-Fei Sow<sup>1</sup>, Jagmohni Sidhu<sup>1</sup> and Vishna Devi Nadarajah<sup>2</sup>.

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<sup>2</sup>Teaching and Learning Office, Department of Human Biology, International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

**Background:** While there is an increasing pool of literature documenting the benefits of near-peer tutoring programme, little is known about the benefits for junior and senior peer tutors. Knowledge of the peer tutors’ perceived benefits at different levels of seniority will aid in the development of a near-peer tutoring programme that will better fulfil both curricula and personal aspirations of near-peer tutors. We, therefore, investigated the perceived benefits of participation in a near-peer tutoring programme for junior as well as senior near-peer tutors.

**Methods:** Pre- and post-participation questionnaires were distributed to near-peer tutors after their clinical skills teaching sessions with Phase I undergraduate medical students. The Peer Tutor Assessment Instrument questionnaires were distributed to the 1) students, and to the 2) near-peer tutors (junior and senior) after each teaching and learning session for self-evaluation.

**Results:** The senior near-peer tutors felt that their participation in the programme had enhanced their skills ( $p=0.03$ ). As a whole, the near-peer tutors were more motivated (Pre  $5.32\pm0.46$ ; Post  $5.47\pm0.50$ ;  $p=0.210$ ) to participate in future teaching sessions but did not expect that having teaching experiences would make teaching as their major career path in the future (Pre  $4.63\pm1.07$ ; Post  $4.54\pm0.98$ ;  $p=0.701$ ). The senior near peer tutors were evaluated significantly higher by the students ( $p=0.0001$ ). Students’ evaluations of near-peer tutors on the domain of critical analysis was higher than self-evaluations ( $p=0.003$ ).

**Conclusions:** Generally, the near-peer tutors perceived that they have benefited most in their skills enhancement and these near-peer tutors were scored highly by the students. However, senior near-peer tutors do not perceive that the programme has a lasting impact on their choice of career path.

**Keywords:** clinical skills; medical students; undergraduate; Phase I; teaching.

Liew YK, Awang Hamat R, Amin Nordin S, Chong PP, Neela V. The exoproteomes of clonally related *Staphylococcus aureus* strains are diverse. *Annals of Microbiology*, 2015; doi: 10.1007/s13213-015-1064-7. [04-01-09-0795RU] (SCI IF: 1.128; H-Index: 19; Tier: Q3).

## The exoproteomes of clonally related *Staphylococcus aureus* strains are diverse.

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### Abstract

Several studies have shown that protein expression patterns vary in unrelated bacterial strains due to genomic plasticity and gene regulation, resulting in enhanced heterogeneity in the infection potential. However, exoprotein expression patterns of closely related clonal strains have not been well characterized. Here, we used medium-range (pH 4–7) immobilized pH gradient–two-dimensional gel electrophoresis to investigate the exoproteome from closely related *Staphylococcus aureus* clonal isolates. Interestingly, we found that, under identical in vitro experimental conditions, a number of protein spots were uniquely present in samples from each clonal isolate regardless of the similarity of the genotype and the same virulence gene profile. Only a few abundant invariant proteins were found among identical genotypic isolates. Our results clearly show that heterogeneity in the exoproteome was present even among clonally related strains. We suggest that this heterogeneity may contribute to the degree of virulence even within one clonal genotype. The heterogeneity in the exoproteome of closely related *S. aureus* strains observed in the current study postulates that pre-existing antibodies are not very protective during recurrent infection with the same strain. Therefore, our findings underscore the importance of taking all clonally related strains into account during proteome analyses.

**Keywords:** *Staphylococcus aureus*, Exoprotein, 2-DGE, Closely related clonal.

Liew YK, Awang Hamat R, van Belkum A, Chong PP, Neela V. Comparative exoproteomics and host inflammatory response in *Staphylococcus aureus* skin and soft tissue infections, bacteremia and sub-clinical colonization. *Clinical and Vaccine Immunology*, 2015; doi: 10.1128/CVI.00493-14. [04-02-12-1756RU] (SCI IF: 2.607; H-Index: 76; Tier: Q1).

## **Comparative exoproteomics and host inflammatory response in *Staphylococcus aureus* skin and soft tissue infections, bacteremia and sub-clinical colonization.**

Liew YK<sup>1</sup>, Hamat RA<sup>2</sup>, van Belkum A<sup>3</sup>, Chong PP<sup>4</sup>, Neela V<sup>5</sup>.

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<sup>5</sup>Department of Medical Microbiology and Parasitology, Universiti Putra Malaysia

### **Abstract**

The exoproteome of *Staphylococcus aureus* contains enzymes and virulence factors that are important for host adaptation. We investigated the exoprotein profiles and cytokine/chemokine responses obtained during three different *S. aureus* host interaction scenarios using two dimensional gel electrophoresis and immunoblots (2DGE/2DIB) combined with tandem mass spectrometry (MS/MS) and cytometric bead array (CBA) techniques. The scenarios included *S. aureus* bacteremia, skin and soft tissue infections (SSTIs) and healthy carriage. By 2DGE approach, twelve exoproteins (chaperone protein DnaK (DnaK), phosphoglycerate kinase (Pfk), chaperone GroEL (GroEL), multisensory hybrid histidine kinase, 3methyl2oxobutanoate hydroxymethyltransferase (PanB), cysteine synthase A, Nacetyltransferase, four isoforms of elongation factor Tu (EFTu) and one signature protein spot that could not be reliably identified by MS/MS) were found to be consistently present in more than 50% of the bacteremia isolates, while none of the SSTIs or healthy carrier isolates showed any of these proteins. By 2DIB approach, we also identified five antigens (methionine aminopeptidase (MetAPs), exotoxin 15 (Set15), peptidoglycan hydrolase (LytM), alkyl hydroperoxide reductase (AhpC) and haptoglobin binding heme uptake protein (HarA)) specific for SSTIs cases. The cytokine and chemokine productions varied during the course of different infection types and carriage. Monokine induced by interferon (MIG) was highly stimulated in bacteremia patients when compared with SSTIs patients and healthy carriers, especially during the acute phase of infection. MIG could therefore be further explored as a potential biomarker for bacteremia. In conclusion, twelve exoproteins from bacteremia isolates, MIG production, and five antigenic proteins identified during SSTIs should be further investigated for potential use as diagnostic markers.

Lim AW, Löbmann K, Grohganz H, Rades T, Chieng N. Investigation of physical properties and stability of indomethacin–cimetidine and naproxen–cimetidine co-amorphous systems prepared by quench cooling, coprecipitation and ball milling. *Journal of Pharmacy and Pharmacology*, 2015; DOI: 10.1111/jphp.12494. [BP I-01/11(25) 2014]. (SCI IF: 2.37; H-Index: 82; Tier: Q1).

## **Investigation of physical properties and stability of indomethacin–cimetidine and naproxen–cimetidine co-amorphous systems prepared by quench cooling, coprecipitation and ball milling.**

Lim AW<sup>1</sup>, Löbmann K<sup>2</sup>, Grohganz H<sup>2</sup>, Rades T<sup>2</sup>, Chieng N<sup>1</sup>.

<sup>1</sup>School of Pharmacy, International Medical University, Bukit Jalil, Kuala Lumpur, Malaysia.

<sup>2</sup>Department of Pharmacy, University of Copenhagen, København, Denmark.

### **Abstract**

**Objectives:** The objective was to characterize the structural behaviour of indomethacin–cimetidine and naproxen–cimetidine co-amorphous systems (1:1 molar ratio) prepared by quench cooling, co-evaporation and ball milling.

**Methods:** Powder X-ray diffraction (PXRD) and DSC were used to characterise the samples. Structural relaxation (i.e. molecular mobility) behaviour was obtained from the Kohlrausch–Williams–Watts (KWW) relationship.

**Key Findings:** A glass transition temperature ( $T_g$ ), on average 20 °C higher than the predicted  $T_g$  (calculated from the Fox equation), was observed in all samples. The structural relaxation was dependent on the preparative methods. At a storage temperature of 40 °C, a comparatively higher molecular mobility was observed in indomethacin–cimetidine samples prepared by ball milling ( $\ln \tau\beta = 0.8$ ), while similar molecular mobility was found for the same sample prepared by quench cooling ( $\ln \tau\beta = 2.4$ ) and co-evaporation ( $\ln \tau\beta = 2.5$ ). In contrast, molecular mobility of the naproxen–cimetidine samples followed the order co-evaporation ( $\ln \tau\beta = 0.8$ ), quench cooling ( $\ln \tau\beta = 1.6$ ) and ball milling ( $\ln \tau\beta = 1.8$ ).

**Conclusion:** The estimated relaxation times by the DSC-KWW method suggest that different preparative methods resulted in a variation of structural characteristics. Despite the differences in molecular mobility, all sample remained co-amorphous for up to 7 months.

Lim CL, Koh RY, Haw TY, Boudville LA. Antioxidant activity of the sea bird nest (*Eucheuma cottonii*) and its radical scavenging effect on human keratinocytes. *Journal of Medical and Bioengineering*, 2015; 4(6): 461-465. [IMU Internal Grant - BMBM1203-95000]. (IF: NA).

## **Antioxidant activity of the sea bird nest (*Eucheuma cottonii*) and its radical scavenging effect on human keratinocytes.**

Chooi Ling Lim, Rhun Yian Koh, Tatt Yhew Haw, and Laura A. Boudville.

School of Medicine and Health Sciences, International Medical University, Kuala Lumpur, Malaysia.

### **Abstract**

The potential of *Eucheuma cottonii* (EC) to be a novel source of antioxidants and protection against photoageing is increasingly evident but largely unexplored. This study aimed to evaluate the antioxidant activity and radical scavenging capacity of EC extracts on human keratinocytes. Aqueous and methanol extracts from EC were evaluated in a series of in vitro assays on the HaCaT keratinocyte cell line. Antioxidant activity was determined via the DPPH assay, while MTT was used to evaluate the cytotoxicity of EC extracts up to 72h exposure. Quantitative and qualitative DCFH-DA fluorescence assays assessed intracellular reactive oxygen species (ROS) levels in UV irradiated cells. EC extracts at concentrations from 10 µg/ml were found to possess significant antioxidant activity ( $p<0.05$ ). Interestingly, the aqueous extract compromised cell viability at high concentrations, while the methanol extract was relatively non-toxic. Intracellular ROS levels significantly decreased with increasing concentration of EC extract treatment ( $p<0.05$ ). In conclusion, EC extracts demonstrated antioxidant activity and protective effects against UV-induced ROS degeneration in keratinocytes, thus underlining its potential in nutraceutical research to promote skin rejuvenation.

**Keywords:** *Eucheuma cottonii*, sea bird nest, antioxidant, keratinocytes.

Lim KG, Chuah SW, Too MES, Wong ZG, Murugesan A, Syed Ameer Bin SA. A cross sectional study of chronic pain relief after *bekam* (traditional malay “cupping”) therapy. *IeJSME*, 2015; 9(2): 32-36. (MyCite IF: 0.038).

## **A cross sectional study of chronic pain relief after *bekam* (traditional malay “cupping”) therapy.**

Kean Ghee Lim, Shu Whey Chuah, Michelle Ee Shan Too, Zheng Guo Wong, Ashwin Murugesan, Syed Ameer Bin Syed Azman.

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### **Abstract**

**Introduction:** *Bekam*, an Islamic variant of cupping, is an ancient form of traditional medicine still practised today in Malaysia. There are published findings indicating that cupping benefits patients with low back pain, other musculoskeletal pain and even pain from cancer, herpes zoster and trigeminal neuralgia when pain is measured on an analogue scale. We proposed to investigate whether in addition to pain improvement on an analogue scale we could show if pain relief might be demonstrated in terms of reduction of analgesic use.

**Methods:** We carried out a retrospective cross sectional study on subjects who had been for outpatient clinic treatment with chronic pain of at least one month and who completed at least two *bekam* therapy sessions. In addition to documenting a pain score before and after therapy we documented their analgesic consumption.

**Results:** A total of 77 respondents, with overlapping symptoms of headache, backache and joint pains were included. The mean pain score before *bekam* therapy was  $6.74 \pm 1.78$ , and was  $2.66 \pm 1.64$  after two sessions of therapy. Twenty eight respondents completed six sessions of *bekam* therapy and had a mean pain score of  $2.25 \pm 1.32$  after. Thirty-four patients consumed analgesic medication before starting *bekam* therapy and only twelve did so after. The consumption of analgesics was significantly lower after *bekam* therapy.

**Conclusions:** *Bekam* therapy appears to help patients experience less pain and reduce the amount of analgesic medication they consume. Nevertheless only a randomised prospective study will eliminate the biases a retrospective study is encumbered with and we believe would be worth doing.

**Keywords:** *Bekam*, cupping, chronic pain, analgesic use, pain score.

Lim PKC, Yamasaki H, Mak JW, Wong SF, Chong CW, Yap IKS, Ambu S, Kumarasamy V. Field evaluation of a rapid diagnostic test to detect antibodies in human toxocariasis. *Acta Tropica*, 2015; 148: 32–37. (ISI IF: 2.519; SCI IF: 2.564; H-Index: 69; Tier: Q1).

## **Field evaluation of a rapid diagnostic test to detect antibodies in human toxocariasis.**

P.K.C. Lim<sup>1</sup>, H. Yamasaki<sup>2</sup>, J.W. Mak<sup>1</sup>, S.F. Wong<sup>1</sup>, C.W. Chong<sup>3</sup>, I.K.S. Yap<sup>3</sup>, S. Ambu<sup>1</sup>, V. Kumarasamy<sup>1</sup>.

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<sup>2</sup>Department of Parasitology, National Institute of Infectious Diseases, Tokyo 162-8640, Japan

<sup>3</sup>School of Pharmacy, International Medical University, 126 Jalan Jalil Perkasa 19, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

### **Abstract**

Human toxocariasis which is caused mainly by the larvae of *Toxocara canis* and *Toxocara cati*, is a worldwide zoonotic disease that can be a potentially serious human infection. The enzyme-linked immunosorbent assay (ELISA) using *T. canis* excretory–secretory (TES) antigens harvested from *T. canis* larvae is currently the serological test for confirming toxocariasis. An alternative to producing large amounts of *Toxocara* TES and improved diagnosis for toxocariasis is through the development of highly specific recombinant antigens such as the *T. canis* second stage larva excretory–secretory 30 kDa protein (recTES-30). The aim of this study was to evaluate the sensitivity and specificity of a rapid diagnostic kit (RDT, named as iToxocara kit) in comparison to recTES-30 ELISA in Serendah Orang Asli village in Selangor, Malaysia. A total of 133 subjects were included in the study. The overall prevalence rates by ELISA and RDT were 29.3% and 33.1%, respectively, with more positive cases detected in males than females. However, no association was found between toxocariasis and gender or age. The percentage sensitivity, specificity, positive predictive value and negative predictive value of RDT were 85.7%, 90.1%, 80% and 93.2%, respectively. The prevalence for toxocariasis in this population using both ELISA and RDT was 27.1% (36/133) and the K-concordance test suggested good agreement of the two tests with a Cohen's kappa of 0.722,  $P < 0.01$ . In addition, the followed-up Spearman rank correlation showed a moderately high correlation at  $R = 0.704$  and  $P < 0.01$ . In conclusion, the RDT kit was faster and easier to use than an ELISA and is useful for the laboratory diagnosis of hospitalized cases of toxocariasis.

**Keywords:** Human toxocariasis, Immunodiagnosis, Enzyme-linked immunosorbent assay, Rapid diagnostic test, Recombinant antigen.

Lim SG, Parasuram M. Performance of activities of living in patients with rheumatoid arthritis in Saudi Arabia. *Journal of Malaysian Nursing Association*, 2014; 10: 31-42. [IMU Internal Grant – BN I-02/02 (PR-01)2011.] (IF: NA).

## **Performance of activities of living in patients with rheumatoid arthritis in Saudi Arabia.**

Lim Swee Geok & Mageswari Parasuram.

School of Nursing, International Medical University, Bukit Jalil, 57000 Kuala Lumpur.

### **Abstract**

**Background:** Rheumatoid arthritis is one of the most common inflammatory arthritis. One of the markers of the disease progression is the decline in the ability to function which resulted in decreased independence.

**Purpose:** The purpose of this study is to describe the performance of activities of living among patients with rheumatoid arthritis (RA) in a hospital in Riyadh, Saudi Arabia.

**Methodology:** A cross sectional descriptive study was done using a 22-item questionnaire. A total of 73 RA patients who had moderate activity scores, at an outpatient clinic in a hospital in Riyadh participated.

**Results:** Majority of the respondents were females, within the age range of 26-40 years (and being diagnosed with RA for more than 10 years. Most affected by the condition were activities related to working and playing followed by sleeping, mobility, eating and drinking and personal cleansing and dressing.

**Conclusion:** RA does disrupt the life of its patients especially their daily living activities and their work life.

**Keywords:** Rheumatoid arthritis, activities of daily living, disability.

Low JH, Ramdas P, Radhakrishnan AK. Modulatory effects of mesenchymal stem cells on leukemic cells: A double-edged sword? *Blood Cells, Molecules and Diseases*, 2015; 55: 351-357. (ISI IF: 2.331; SCI IF: 2.626; H-Index: 68; Tier: Q2). [BMS I-01/2011(10)].

## **Modulatory effects of mesenchymal stem cells on leukemic cells: A double-edged sword?**

Jun How Low<sup>1,3</sup>, Premdass Ramdas<sup>2</sup>, Ammu Kutty Radhakrishnan<sup>3</sup>.

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<sup>3</sup>Division of Pathology, Faculty of Medicine and Health Sciences, International Medical University, Malaysia

### **Abstract**

Mesenchymal stem cells (MSCs) have drawn much attention amongst stem cell researchers in the past few decades. The ability of the MSC to differentiate into cells of mesodermal and non-mesodermal origins has made them an attractive approach for cell-based therapy and regenerative medicine. The MSCs have immunosuppressive activities that may have considerable therapeutic values in autoimmune diseases. However, despite the many beneficial effects reported, there is a growing body of evidence, which suggests that MSCs could be a culprit of enhanced tumour growth, metastasis and drug resistance in leukaemia, via some modulatory effects. Many controversies regarding the interactions between MSCs and leukaemia still exist. Furthermore, the role of MSCs in leukemogenesis and its progression remain largely unknown. Hence it is important to understand how the MSCs modulate leukaemia before these cells could be safely used in the treatment of leukaemia patients.

**Keywords:** Mesenchymal stem cells, Leukaemia, Immunomodulatory.

Maheshwari R, Tekade M, Sharma PA, Tekade RK. Nanocarriers assisted siRNA gene therapy for the management of cardiovascular disorders. *Current Pharmaceutical Design*, 2015; 21: 4427-40. (ISI IF: 3.452; SCI IF: 3.33; H-Index: 112; Tier: Q1).

## **Nanocarriers assisted siRNA gene therapy for the management of cardiovascular disorders.**

Maheshwari Rahul, Tekade Muktika, A. Sharma Piyoosh, Kumar Tekade Rakesh<sup>1</sup>.

<sup>1</sup>School of Pharmacy, Department of Pharmaceutical Technology, International Medical University, Jalan Jalil Perkasa 19, 57000 Kuala Lumpur, Malaysia.

### **Abstract**

Cardiovascular diseases (CVDs), primarily myocardial infarction (MI), atherosclerosis, hypertension and congestive heart failure symbolize the foremost cause of death in almost all parts of the world. Besides the traditional therapeutic approaches for the management of CVDs, newer innovative strategies are also emerging on the horizon. Recently, gene silencing via small interfering RNA (siRNA) is one of the hot topics amongst various strategies involved in the management of CVDs. The siRNA mechanism involves natural catalytic processes to silence pathological genes that are overexpressed in a particular disease. Also the versatility of gene expression by siRNA deciphers a prospective tactic to down-regulate diseases associated gene, protein or receptor existing on a specific disease target. This article reviews the application of siRNA against CVDs with special emphasis on gene targets in combination with delivery systems such as cationic hydrogels, polyplexes, peptides, liposomes and dendrimers.

**Keywords:** Cardiovascular disorders, RNAi, myocardial infarction, siRNA.

Mai CW, Ramadas A, Tiong JJL, Lai PK, Pichika MR, Gray AI. Chemistry content in the pharmacy curriculum: Relevance to develop pharmacists fit-to-work in diverse pharmacy profession sectors. *Indian Journal of Pharmaceutical Education and Research*, 2015; 49(4): 5-5. (ISI IF: 0.219; SCI IF: 0.776; H-Index: 9; Tier: Q1).

## **Chemistry content in the pharmacy curriculum: Relevance to develop pharmacists fit-to-work in diverse pharmacy profession sectors.**

Chun Wai Mai<sup>1</sup>, Ramadas Anitha<sup>2</sup>, John Jeh Lung Tiong<sup>3</sup>, Pei Kuan Lai<sup>4</sup>, Mallikarjuna Rao Pichika<sup>1</sup>, and Alexander Irvine Gray<sup>5</sup>.

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<sup>5</sup>Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, 161 Cathedral Street, Glasgow G4 0RE, Scotland, United Kingdom.

### **Abstract**

**Background:** The high employability of pharmacy graduates across various sectors such as in the community pharmacies and hospital settings, the pharmaceutical industries and academia has lent credence to the versatility of their professional training. Therefore, the aim of this study was to gauge the perception of International Medical University (IMU) pharmacy graduates on the applicability and relevance of the chemistry knowledge and practical skills acquired from their professional education in their working place.

**Methods:** The survey was designed based on the pharmacy curriculum of IMU. Qualitative and quantitative responses were collected and analysed by three independent investigators who were not the respondents, and not lecturing in any part of the Chemistry curriculum. The study was completed when the qualitative feedback from respondents reached saturation.

**Results:** Almost equal numbers of pharmacists from the different pharmacy disciplines: (1) industrial and regulatory, (2) hospital and clinical, (3) community and (4) academia, participated in this study. Most of the chemistry topics were rated as essential by the graduates. Some topics were rated very relevant (more than 80%) whereas only up to 30% of the graduates agreed on the essentiality of some topics to their profession.

**Conclusion:** The study concluded that most of the current chemistry content is still essential in nurturing competent pharmacists for their respective disciplines. The outcomes of this study will be used as evidence to support the need for conducting a curriculum review, to better prepare graduates for their future employment.

**Keywords:** Chemistry, Competency, Fit-to-work, Graduates, Pharmacy Curriculum, Pharmacy Profession.

Mansuri M, Kesharwani P, Tekade RK, Jain NK. Lyophilized mucoadhesive - dendrimer enclosed matrix tablet for extended oral delivery of albendazole. *European Journal of Pharmaceutics and Biopharmaceutics*, 2015; in press. (ISI IF: 3.850; SCI IF: 3.853; H-Index: 103; Tier: Q1).

## **Lyophilized mucoadhesive - dendrimer enclosed matrix tablet for extended oral delivery of albendazole.**

Shakir Mansuri<sup>1</sup>, Prashant Kesharwani<sup>2</sup>, Rakesh Kumar Tekade<sup>3</sup>, Narendra Kumar Jain<sup>1</sup>.

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<sup>2</sup>Department of Pharmaceutical Sciences, Eugene Applebaum College of Pharmacy and Health Sciences, Wayne State University, Detroit, MI 48201, United States.

<sup>3</sup>International Medical University, School of Pharmacy, Department of Pharmaceutical Technology, Jalan Jalil Perkasa 19, 57000 Kuala Lumpur, Malaysia

### **Abstract**

Dendrimers are multifunctional carriers widely employed for delivering drugs in a variety of disease conditions including HIV/AIDS and cancer. Albendazole (ABZ) is a commonly used anthelmintic drug in human as well as veterinary medicine. In this investigation, ABZ was formulated as a "muco-dendrimer" based sustained released tablet. The mucoadhesive complex was synthesized by anchoring chitosan to fifth generation PPI dendrimer (Muco-PPI) and characterized by UV, FTIR, <sup>1</sup>H NMR spectroscopy and electron microscopy. ABZ was entrapped inside Muco-PPI followed by lyophilization and tableting as matrix tablet. A half-life (*t*<sub>1/2</sub>) of 8.06 ± 0.15, 8.17 ± 0.47, 11.04 ± 0.73, 11.49 ± 0.92, 12.52 ± 1.04 and 16.9 ± 1.18 h was noted for ABZ (free drug), conventional ABZ tablet (F1), conventional ABZ matrix tablet (F2), PPI-ABZ complex, PPI-ABZ matrix tablet (F3) and Muco-PPI-ABZ matrix tablet (F4), respectively. Thus the novel mucoadhesive-PPI based formulation of ABZ (F4) increased the *t*<sub>1/2</sub> of ABZ significantly by almost twofold as compared to the administration of free drug. The *in vivo* drug release data showed that the Muco-PPI based formulations have a significantly higher C<sub>max</sub> (2.40 ± 0.02 lg/mL) compared with orally administered free ABZ (0.19 ± 0.07 lg/mL) as well as conventional tablet (0.20 ± 0.05 lg/mL). In addition, the Muco-PPI-ABZ matrix tablet displayed increased mean residence time (MRT) and is therefore a potential candidate to appreciably improve the pharmacokinetic profile of ABZ.

**Keywords:** Albendazole, Muco-PPI, Matrix tablet, Mucoadhesion, MRT.

Md S, Mustafa G, Baboota S, Ali J. Nanoneurotherapeutics approach intended for direct nose to brain delivery. *Drug Development and Industrial Pharmacy*, 2015; (online) (doi: 10.3109/03639045.2015.1052081). (ISI IF: 2.101; SCI IF: 1.887; H-Index: 60; Tier: Q2).

## **Nanoneurotherapeutics approach intended for direct nose to brain delivery.**

Shadab Md<sup>1</sup>, Gulam Mustafa<sup>2,3</sup>, Sanjula Baboota<sup>3</sup>, and Javed Ali<sup>3</sup>.

<sup>1</sup>Department of Pharmaceutical Technology, School of Pharmacy, International Medical University (IMU), Kuala Lumpur, Malaysia,

<sup>2</sup>College of Pharmacy, AlDawadmi Campus, Shaqra University, Riyadh, Kingdom of Saudi Arabia, and

<sup>3</sup>Faculty of Pharmacy, Department of Pharmaceutics, Jamia Hamdard, New Delhi, India

### **Abstract**

**Context:** Brain disorders remain the world's leading cause of disability, and account for more hospitalizations and prolonged care than almost all other diseases combined. The majority of drugs, proteins and peptides do not readily permeate into brain due to the presence of the blood-brain barrier (BBB), thus impeding treatment of these conditions.

**Objective:** Attention has turned to developing novel and effective delivery systems to provide good bioavailability in the brain.

**Methods:** Intranasal administration is a non-invasive method of drug delivery that may bypass the BBB, allowing therapeutic substances direct access to the brain. However, intranasal administration produces quite low drug concentrations in the brain due limited nasal mucosal permeability and the harsh nasal cavity environment. Pre-clinical studies using encapsulation of drugs in nanoparticulate systems improved the nose to brain targeting and bioavailability in brain. However, the toxic effects of nanoparticles on brain function are unknown.

**Results and conclusions:** This review highlights the understanding of several brain diseases and the important pathophysiological mechanisms involved. The review discusses the role of nanotherapeutics in treating brain disorders via nose to brain delivery, the mechanisms of drug absorption across nasal mucosa to the brain, strategies to overcome the blood brain barrier, nanoformulation strategies for enhanced brain targeting via nasal route and neurotoxicity issues of nanoparticles.

**Keywords:** Blood brain barrier; brain disorders; nanotechnology; neurodegenerative disorders; nose to brain targeting; toxicity study.

Md Shahidul A, Cheng J, Maruyama S, Saku T. Intraductal papilloma of minor salivary glands: Its differential diagnosis from pleomorphic adenoma by immunohistochemistry. *Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology*, 2015; 119(3): e178. (ISI IF: 1.261; SCI IF: 1.355; H-Index: 82; Tier: Q1).

## **Intraductal papilloma of minor salivary glands: Its differential diagnosis from pleomorphic adenoma by immunohistochemistry.**

Md Shahidul Ahsan<sup>1</sup>, Jun Cheng<sup>2</sup>, Satoshi Maruyama<sup>2</sup>, Takashi Saku<sup>2</sup>.

<sup>1</sup>School of Dentistry, International Medical University (IMU), Kuala Lumpur, Malaysia;

<sup>2</sup>Division of Oral Pathology, Niigata University Graduate School of Medical and Dental Sciences, Niigata, Japan

### **Abstract**

**Objective:** Intraductal papilloma (IDP) is considered to be generated by a papillary proliferation of tumor cells with ductepithelial characteristics in a cystically-dilated ductal space. However, it seems to be rare to encounter such typical cases of intraductal papilloma especially in case they arise in minor salivary glands, where intraoral mechanical stresses affect their histopathological architectures, and thus they are often misdiagnosed as pleomorphic adenomas (PA).

**Study Design:** To clarify histopathological characteristics of IDP, ten surgical specimens each of IDP vs. PA were investigated by immunohistochemistry.

**Results:** In IDP, the double-layered cellular arrangement mimicking ducts was clearly demonstrated by keratin (K) 7-positive (+) luminal cells and basal cells which were positive for vimentin, calponin, S-100 protein, and P63. In PA, in contrast, most of the tumor cells were positive for K7, vimentin, S-100 protein, P63, and calponin, showing no double-layer arrangement.

**Conclusions:** These results indicated that intraductal papilloma could be definitely distinguishable from pleomorphic adenoma.

**Keywords:** intraductal papilloma, pleomorphic adenoma, ductal structures, duct epithelial markers, myoepithelial markers.

Meka VK, Lim KT, Gorajana A, Kolapalli VRM. Formulation and optimization of gastric floating drug delivery system using central composite design and its biopharmaceutical evaluation. *Pakistan Journal of Pharmaceutical Sciences*, 2015; 28(4): 1373-87. (ISI IF: 0.682; SCI IF: 0.836; H-Index: 23; Tier: Q2).

## **Formulation and optimization of gastric floating drug delivery system using central composite design and its biopharmaceutical evaluation.**

Meka VS<sup>1</sup>, Thing LK<sup>2</sup>, Gorajana A<sup>2</sup>, Kolapalli VR<sup>3</sup>.

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<sup>2</sup>School of Pharmacy, International Medical University, Kuala Lumpur, Malaysia.

<sup>3</sup>AU College of Pharmaceutical Sciences, Andhra University, Visakhapatnam, India.

### **Abstract**

The present work investigates the formulation and biopharmaceutical estimation of gastric floating drug delivery system (GFDDS) of propranolol HCl using semisynthetic polymer carboxymethyl ethyl cellulose (CMEC) and a synthetic polymer polyethylene oxide (PEO). A central composite design was applied for optimization of polymer quantity (CMEC or PEO) and sodium bicarbonate concentration as independent variables. The dependent variables evaluated were: % of drug release at 1 hr (D1hr), % drug release at 3 hr (D3hr) and time taken for 95% of drug release (t95). Numerical optimization and graphical optimization were conducted to optimize the response variables. All observed responses of statistically optimized formulations were in high treaty with predicted values. Accelerated stability studies were conducted on the optimized formulations at 40±2°C/75% ±5% RH and confirm that formulations were stable. Optimized formulations were evaluated for in vivo buoyancy characterization in human volunteers and were found buoyant in gastric fluid. Gastric residence time was enhanced in the fed but not the fasted state. The optimized formulations and marketed formulation were administered to healthy human volunteers and evaluated for pharmacokinetic parameters. Mean residence time (MRT) was prolonged and AUC levels were increased for both optimized floating tablets when compared with marketed product. High relative bioavailability obtained with optimized gastric floating tablets compared to commercial formulation, indicated the improvement of bioavailability.

Meka VS, Pillai S, Dharmalingham SR, Sheshala R, Gorajana A. Preparation and in-vitro characterization of a non-effervescent floating drug delivery system for poorly soluble drug, glipizide. *Acta Poloniae Pharmaceutica Drug Research*, 2015; 72(1): 193-204. (IF: NA).

## **Preparation and in-vitro characterization of a non-effervescent floating drug delivery system for poorly soluble drug, glipizide.**

Venkata Srikanth Meka, Shreeni Pillai, Senthil Rajan Dharmalingam, Ravi Sheshala, and Adinarayana Gorajana.

School of Pharmacy, International Medical University, Bukit Jalil, 57000, Kuala Lumpur, Malaysia.

### **Abstract**

The aim of the present study was to formulate a non-effervescent floating drug delivery system of glipizide, a poorly water soluble drug. The solubility of glipizide was initially enhanced using a solid dispersion (SD) strategy with the help of hydrophilic carriers such as poloxamer, cyclodextrin, and povidone. The optimized core material/SD was further formulated into non-effervescent floating tablets (NEFT) by using matrix ballooning inducers, such as crospovidone and release retarding agents including HPMC and PEO. Poloxamer-based solid dispersions prepared by a solvent evaporation technique showed the highest dissolution rate (1: 10 drug to carrier ratio) compared with all other dispersions. NEFT were evaluated for all physicochemical properties including in vitro buoyancy, dissolution, and release rate. All of the tablets were found to be within pharmacopoeial limits and all of the formulations exhibited good floating behavior. The formulations (F2 and F3) were optimized based on their 12 h drug retardation with continuous buoyancy. The optimized formulations were characterized using FTIR and DSC and no drug and excipient interaction was found. In-vitro buoyancy and dissolution studies showed that non-effervescent floating drug delivery systems provide a promising method of achieving prolonged gastric retention time and improved bioavailability of glipizide.

**Keywords:** non-effervescent, floating system, glipizide, solid dispersion.

Menke JM. Natural healing indeed: Treating with placebo while waiting for natural history to resolve back pain. *Spine*, 2015; Accepted for publication on July 12, 2015. (ISI IF: 2.8; SCI IF: 2.693; H-Index: 172; Tier: Q1).

## **Natural healing indeed: Treating with placebo while waiting for natural history to resolve back pain.**

Michael J. Menke.

School of Psychology, International Medical University, Kuala Lumpur.

### **Abstract**

Mr. Cremata successfully defends conventional clinical trial methodology, a blunt instrument that obfuscates facts, delays decisions, favors placebos, and perpetuates pseudoscience. That most non-specific back pain (NSLBP) resolves without treatment does not deter billions of dollars spent annually on unnecessary spinal manipulation (SM), surgeries, and infomercial gizmos. NSLBP is thus a gold standard for investigating failures of research methods. After confirming SM ineffectiveness, the three methodological faults were: between-group null hypothesis significance testing (NHST), underestimating social value of frequent treatment, and conflation of efficacy with effectiveness. These faults manifest as complaints about disagreeable findings, a deep bias that misleads scientists into believing these issues to be intermittent, rare, or not their problems.

Menon V, Lee CW. A case of prolonged fever and a diagnosis obscured by an opaque sinus. *Medical Journal of Malaysia*, 2014; 69(3): 140-141. (SCI IF: 0.439; H-Index: 19; Tier: Q3).

## **A case of prolonged fever and a diagnosis obscured by an opaque sinus.**

Velayudhan Menon<sup>1</sup>, Lee Cheng Wai<sup>2</sup>.

<sup>1</sup>Clinical Associate Professor of Medicine, International Medical University, Malaysia,

<sup>2</sup>Consultant Radiologist, Pantai Hospital Batu Pahat, Malaysia

### **Abstract**

Prolonged fever in patients can be a diagnostic challenge. Clinicians generally consider infectious diseases, malignant diseases and collagen vascular diseases as possible causes of pyrexia of unknown origin (PUO). Even after extensive evaluation as many as 15 percent of patients with prolonged fever may remain undiagnosed. This case report describes subacute thyroiditis as a cause of prolonged fever and documents how that diagnosis was finally made after 40 days of fever.

**Keywords:** Fever of Unknown Origin; Thyroiditis, subacute.

Misra S, Khor GL, Mitchell P, Haque S, Benton D. A pilot study to determine the short-term effects of milk with differing glycaemic properties on sleep among toddlers: A randomised controlled trial. *BMC Pediatrics*, 2015; 15: 79. DOI: 10.1186/s12887-015-0393-9. [IMU External Grant - IMU RA174\_2011]. (ISI IF: 1.93; SCI IF: 2.094; H-Index: 41; Tier: Q1).

## **A pilot study to determine the short-term effects of milk with differing glycaemic properties on sleep among toddlers: A randomised controlled trial.**

Snigdha Misra<sup>1</sup>, Geok L Khor<sup>1</sup>, Peter Mitchell<sup>2</sup>, Samsul Haque<sup>3</sup> and David Benton<sup>4</sup>.

<sup>1</sup>Division of Nutrition and Dietetics, International Medical University, 57000 Kuala Lumpur, Malaysia.

<sup>2</sup>Department of Psychology, University of Nottingham, Malaysia Campus, 43500 Semenyih, Selangor Darul Ehsan, Malaysia.

<sup>3</sup>Department of Psychology, Monash University, Sunway Campus, 47500 Subang Jaya, Selangor, Malaysia.

<sup>4</sup>Department of Psychology, University of Swansea, Swansea SA2 8PP Wales, UK.

### **Abstract**

**Background:** Sleep is important for children as it directly impacts their mental and physical development. Sleep is not only influenced by the timing but also the macronutrient (carbohydrate and protein) content of meals. Glycaemic index (GI) and glycaemic load (GL) describe the quality of carbohydrates in a food and the burden of these foods on the body's blood glucose response. Diets with a high GI/GL may increase the risk of developing obesity and type 2 diabetes mellitus in adulthood. The present study is piloted to evaluate the short-term impact of milk products with differing glycaemic properties on the sleep patterns of toddlers.

**Methods:** Toddlers were recruited from various day care centres. Informed consent was obtained from both the mothers and the centres. A double-blind randomised controlled trial with a between-subjects design was adopted. The toddlers were randomised to either one of two types of milk with a differing GI ("Low" = 23 and "High" = 65") for a period of 3.5 days. There were no other dietary restrictions imposed except that the enrolled child did not consume any other milk during the study period. The sleep patterns were recorded using a Phillips Actiwatch-2, which was worn on the wrist for 24 h over 4 days. The parameters used to measure the sleep pattern were sleep-onset latency (SOL), total sleep time (TST), wake after sleep onset (WASO) and sleep efficiency (SE).

**Results:** A total of 56 toddlers completed the study. The toddlers had a mean age of  $19.9 \pm 4.3$  months. There were no significant differences ( $p > 0.05$ ) between the two GI groups for SOL, TST, WASO and SE at the end of the feeding period.

**Conclusions:** Sleep patterns of toddlers on low-GI milk did not differ from those with high-GI milk consumed over a short period. Future studies should consider the glycaemic effects of other foods, along with milk with differing GI, consumed for a longer feeding duration.

**Trial registration:** ClinicalTrial.gov NCT01589003.

**Keywords:** Glycaemic index, Toddlers, Sleep, Milk.

Mohanty DP, Mohapatra S, Misra S, Sahu PS. Milk derived bioactive peptides and their impact on human health – A review. *Saudi Journal of Biological Sciences*, 2015; DOI: <http://dx.doi.org/10.1016/j.sjbs.2015.06.005>. (ISI IF: 1.257; SCI IF: 1.533; H-Index: 11; Tier: Q2).

## **Milk derived bioactive peptides and their impact on human health – A review.**

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<sup>2</sup>Division of Pathology, School of Medicine, International Medical University, 57000 Kuala Lumpur, Malaysia

<sup>3</sup>Division of Nutrition and Dietetics, School of Health Sciences, International Medical University, 57000 Kuala Lumpur, Malaysia

### **Abstract**

Milk-derived bioactive peptides have been identified as potential ingredients of health promoting functional foods. These bioactive peptides are targeted at diet-related chronic diseases especially the non-communicable diseases viz., obesity, cardiovascular diseases and diabetes. Peptides derived from the milk of cow, goat, sheep, buffalo and camel exert multifunctional properties, including anti-microbial, immune modulatory, anti-oxidant, inhibitory effect on enzymes, anti-thrombotic, and antagonistic activities against various toxic agents. Majority of those regulate immunological, gastrointestinal, hormonal and neurological responses, thereby playing a vital role in the prevention of cancer, osteoporosis, hypertension and other disorders as discussed in this review. For the commercial production of such novel bioactive peptides large scale technologies based on membrane separation and ion exchange chromatography methods have been developed. Separation and identification of those peptides and their pharmacodynamic parameters are necessary to transfer their potent functional properties into food applications. The present review summarizes the preliminary classes of bioactive milk-derived peptides along with their physiological functions, general characteristics and potential applications in health-care.

**Keywords:** Milk; Bioactive peptides; Production; Purification; Healthcare.

Murthy TEGK, Kumari M, Jithendra CH, Mayuren C. Influence of fenofibrate on the pharmacodynamic activity of glimepiride in rats and rabbits. *Journal of Chemical and Pharmaceutical Sciences*, 2014; 7(4): 345-350. (SCI IF: 0.092; H-Index: 2; Tier: Q4).

## **Influence of fenofibrate on the pharmacodynamic activity of glimepiride in rats and rabbits.**

Murthy TEGK<sup>1</sup>, Manogna Kumari K<sup>2</sup>, Jithendra Ch<sup>2</sup> and Mayuren C<sup>3</sup>.

<sup>1</sup>Dept. of Pharmaceutics, Bapatla College of Pharmacy, Bapatla, Andhra Pradesh, India - 522101

<sup>2</sup>Dept. of Pharmacology, Bapatla College of Pharmacy, Bapatla, Andhra Pradesh, India - 522101

<sup>3</sup>Dept. of Life sciences, International Medical Univeristy, Kuala Lumpur, Malaysia

### **Abstract**

Fenofibrate, a lipid lowering agent was commonly prescribed in diabetic patients with high lipid profile. As it was reported to influence the blood glucose levels, the present study was designed to report the effect of fenofibrate on hypoglycemic activity of glimepride. The influence of fenofibrate on the hypoglycemic activity of glimepiride was studied in rats and rabbits. Fenofibrate and glimepiride were studied at doses of 18 and 0.09mg/kg in rats and 9.33, 0.047mg/kg in rabbits, respectively. The blood samples collected at pre-determined time intervals were analyzed for glucose levels using a glucometer. Glimepiride exhibited a maximum reduction in blood glucose levels at the 4th hour in rats and rabbits. Fenofibrate showed significant effect on the hypoglycemic activity of glimepiride in both single and multiple dose interaction studies in rats and rabbits. The study indicates that fenofibrate pretreatment elevates the pharmacodynamic activity of glimepiride by a possible rise in insulin sensitivity and improving insulin homeostasis or may be due to the inhibition of CYP2C9. The study also suggests that caution may be recommended concerning combined use of fenofibrate and an oral hypoglycemic agent, glimepiride.

**Keywords:** Glimepiride, Fenofibrate, Hypoglycemia, Drug Interactions.

Naing C, Poovorawan Y, Mak JW, Aung K, Kamolratankul P. Cost-utility analysis of an adjunctive recombinant activated factor VIIa for on-demand treatment of bleeding episodes in dengue haemorrhagic fever. *Blood Coagulation and Fibrinolysis*, 2015; [Epub ahead of print]. (ISI IF: 1.38; SCI IF: 1.572; H-Index: 55; Tier: Q2).

## **Cost-utility analysis of an adjunctive recombinant activated factor VIIa for on-demand treatment of bleeding episodes in dengue haemorrhagic fever.**

Cho Naing<sup>1</sup>, Yong Poovorawanh<sup>2</sup>, Joon Wah Mak<sup>1</sup>, Kyan Aung<sup>3</sup> and Pirom Kamolratankul<sup>2</sup>.

<sup>1</sup>Institute for Research, Development and Innovation, International Medical University, Kuala Lumpur, Malaysia,

<sup>2</sup>Chulalongkorn University, Bangkok, Thailand and

<sup>3</sup>School of Medicine, International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

The present study aimed to assess the cost–utility analysis of using an adjunctive recombinant activated factor VIIa (rFVIIa) in children for controlling life-threatening bleeding in dengue haemorrhagic fever (DHF)/dengue shock syndrome (DSS). We constructed a decision-tree model, comparing a standard care and the use of an additional adjuvant rFVIIa for controlling life-threatening bleeding in children with DHF/DSS. Cost and utility benefit were estimated from the societal perspective. The outcome measure was cost per quality-adjusted life years (QALYs). Overall, treatment with adjuvant rFVIIa gained QALYs, but the total cost was higher. The incremental cost–utility ratio for the introduction of adjuvant rFVIIa was \$4241.27 per additional QALY. Sensitivity analyses showed the utility value assigned for calculation of QALY was the most sensitive parameter. We concluded that despite high cost, there is a role for rFVIIa in the treatment of life-threatening bleeding in patients with DHF/DSS.

**Keywords:** cost-utility analysis, decision tree model, dengue haemorrhagic fever, recombinant activated factor VIIa.

Naing C, Sitt T, Aung ATD, Aung K. Sustained virologic response to a dual peginterferon alfa-2a and ribavirin in treating chronic hepatitis C infection: A retrospective cohort study. *Medicine*, 2015; 94(30): 1-7. (ISI IF: 5.723; SCI IF: 7.062; H-Index: 111; Tier: Q1).

## **Sustained virologic response to a dual peginterferon alfa-2a and ribavirin in treating chronic hepatitis C infection: A retrospective cohort study.**

Cho Naing, Than Sitt, Aye TD Aung, and Kyan Aung.

Institute for Research, Development and Innovation (IRDI), International Medical University, Kuala Lumpur 57000, Malaysia

### **Abstract**

In Myanmar, hepatitis C virus (HCV) infection prevalence is 2%. A combination therapy of pegylated interferon alfa-2a and ribavirin (PEG-IFNa/RBV) is a standard treatment, but the effect of this antiviral therapy needs evaluation as to determine the efficacy and safety of dual PEG-IFNa/RBV therapy in treating patients infected with HCV in Myanmar.

This was a retrospective analysis of data from a single clinic exclusively for gastrointestinal diseases in Yangon, Myanmar. We assessed treatment responses at the defined time points and stratified by genotypes of HCV. We also determined incidences of adverse events (AEs). We investigated independent predictors of sustained virologic response (SVR) in the participants.

A total of 362 HCV-infected cases were included in this study. The majority were females (51.7%) with mean age of 47.12 years ( $\pm 11.6$ ) and noncirrhosis patients (82%). Rapid virologic response (RVR), early virologic response (EVR), end of treatment response (ETR), and SVR 24 weeks after completion of the dual treatment were 50.3% (178/362), 88% (314/357), 80.1% (286/357), and 85.6% (167/195), respectively. The most frequently reported AEs were nausea/anorexia (72.8%) and flu-like symptoms (62.4%). In multivariate analysis, 4 factors were independently associated with SVR; SVR to genotype 3 (odds ratio [OR] 2.4, 95% CI: 1.24–4.62), EVR (OR 0.54, 95% CI: 0.3–0.95), and duration of treatment (OR 1.52, 95% CI: 1.18–1.98). Study limitations were acknowledged.

The efficacy and safety of the dual therapy in treating HCV-infected patient in Myanmar was acceptable. We recommend a prospective randomized control trial looking at duration of therapy and rates of achieving SVR, which could significantly impact the care of HCV-infected patients in Myanmar and perhaps other countries as well.

Naing C, Wai VN, Durham J, Whittaker MA, Win NN, Aung K, Mak JW. A systematic review and meta-analysis of medical students' perspectives on the engagement in research. *Medicine*, 2015; 94(28): e1089. DOI: 10.1097/MD.0000000000001089. (ISI IF: 5.723; SCI IF: 7.062; H-Index: 111; Tier: Q1).

## **A systematic review and meta-analysis of medical students' perspectives on the engagement in research.**

Cho Naing<sup>1</sup>, Victor Nyunt Wai<sup>2</sup>, Jo Durham<sup>3</sup>, Maxine A. Whittaker<sup>3</sup>, Ni Ni Win<sup>4</sup>, Kyan Aung<sup>2</sup>, Joon Wah Mak<sup>1</sup>.

<sup>1</sup>Institute for Research, Development and Innovation (IRDI), International Medical University, Kuala Lumpur.

<sup>2</sup>School of Medicine, International Medical University (IMU), Kuala Lumpur, Malaysia;

<sup>3</sup>School of Public Health, International Medical University (IMU), Kuala Lumpur, Malaysia; University of Queensland, Brisbane, Australia;

<sup>4</sup>School of Health Sciences, International Medical University (IMU), Kuala Lumpur, Malaysia.

### **Abstract**

Engaging students in active learning lies at the center of effective higher education. In medical schools, students' engagement in learning and research has come under increasing attention. The objective of this study was to synthesize evidence on medical students' perspectives on the engagement in research. We performed a systematic review and meta-analysis.

Relevant studies were searched in electronic databases. The methodological quality of the included studies was assessed. Overall, 14 observational studies (with 17 data sets) were included. In general, many studies did not use the same questionnaires and the outcome measurements were not consistently reported; these presented some difficulties in pooling the results. Whenever data permitted, we performed pooled analysis for the 4 education outcomes. A Bayesian meta-analytical approach was supplemented as a measure of uncertainty.

A pooled analysis showed that 74% (95% confidence interval [CI]: 1.57%–11.07%; I<sup>2</sup>: 95.2%) of those students who engaged in research (while at the medical school) had positive attitudes toward their research experiences, whereas 49.5% (95% CI: 36.4%–62.7%; I<sup>2</sup>: 93.4%) had positive attitudes toward the study of medical sciences, 62.3% (95% CI: 46.7%–77.9%; I<sup>2</sup>: 96.3%) had self-reported changes in their practices, and 64% (95% CI: 30.8%–96.6%; I<sup>2</sup>: 98.5%) could have published their work. There was substantial heterogeneity among studies. We acknowledged the caveats and the merit of the current review.

Findings showed that engagement in research resulted in favourable reactions toward research and academic learning. Future well-designed studies using standardized research tools on how to engage students in research are recommended.

Naing C, Whittaker MA, Mak JW, Aung K. A systematic review of the efficacy of a single dose artemisinin-naphthoquine in treating uncomplicated malaria. *Malaria Journal*, 2015; in press. (ISI IF: 3.11; SCI IF: 2.894; H-Index: 61; Tier: Q1).

## A systematic review of the efficacy of a single dose artemisinin-naphthoquine in treating uncomplicated malaria.

Cho Naing<sup>1</sup>, Maxine A. Whittaker<sup>2</sup>, Joon Wah Mak<sup>1</sup> and Kyan Aung<sup>3</sup>.

<sup>1</sup>Institute for Research, Development and Innovation, International Medical University, Kuala Lumpur, Malaysia.

<sup>2</sup>School of Public Health, University of Queensland, Brisbane, Australia.

<sup>3</sup>School of Medicine, International Medical University, Kuala Lumpur, Malaysia.

### Abstract

**Background:** This study aimed to synthesize the existing evidence on the efficacy and safety of a single dose artemisinin–naphthoquine (ASNQ) for treatment of uncomplicated malaria in endemic countries.

**Methods:** A meta-analysis of randomized, controlled trials (RCT), assessing efficacy and safety of single dose ASNQ was carried out. Comparator drugs included artemether–lumefentriene (AL), chloroquine plus sulfadoxine-pyrimethamine (CQSP) and dihydroartemisinin–piperaquine (DHP). The efficacy and safety profile of non-comparator, single-arm studies on the single dose ASNQ was also assessed. The primary endpoint was efficacy defined as an absence of PCR-confirmed parasitaemia. The methodological quality of the included studies was assessed using the six domains for the risk of bias.

**Results:** Five RCTs and three single-arm studies were included in this review. As RCT studies did not compare the same anti-malarial drugs, it was difficult to do a pooled analysis. At day 28, a pooled analysis of two RCTs ( $n = 271$ ) showed a comparable efficacy on PCR-confirmed parasitaemia between ASNQ and AL. Another RCT, which compared ASNQ and CQSP or ASNQ and DHP, also showed comparable efficacy. At day 42, one RCT comparing ASNQ and DHP and another RCT comparing ASNQ and AL reported comparable levels of efficacy. The proportion of parasite clearance was faster in the ASNQ groups than the comparators at day 1, and almost all parasites were cleared by day 3 in the ASNQ groups.

**Conclusions:** The present review provides some evidence to support that there is similar efficacy and safety of the single dose ASNQ compared to other anti-malarial drugs in treating uncomplicated malaria. Larger, adequately powered, well-designed studies are recommended to substantiate the efficacy and safety in different populations and in different epidemiological settings. As the potential evolution of drug resistance is a great concern and this cannot be addressed in a short-term study, the use of single dose ASNQ needs further evaluation.

**Keywords:** Artemisinin–naphthoquine, Malaria, Randomized controlled trials, Systematic review.

Nalaiya J, Sagineedu SR, Rajasingam R, Kassim Z, Pichika MR. A stability-indicating RP-HPLC method for simultaneous determination of simvastatin and niacin in a combined dosage form. *International Journal of Pharmacy and Pharmaceutical Sciences*, 2015; 7: 262-268. [IMU Project id: MAPC|1/2013(1)]. (ISI IF: 0.55; SCI IF: 0.553; H-Index: 20; Tier: Q2).

## **A stability-indicating RP-HPLC method for simultaneous determination of simvastatin and niacin in a combined dosage form.**

Jeyashanthini Nalaiya<sup>1</sup>, Sreenivasa Rao Sagineedu<sup>1</sup>, Rajakumari Rajasingam<sup>1</sup>, Zahahil Kassim<sup>2</sup>, Mallikarjuna Rao Pichika<sup>1</sup>.

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<sup>2</sup>Innovax Sdn. Bhd., Jalan Saudagar U1/16, Seksyen U1, HICOM Glenmarie Industrial Park, 40150 Shah Alam, Selangor Darul Ehsan, Malaysia.

### **Abstract**

**Objective:** To develop a simple, selective and rapid stability-indicating reverse phase high performance liquid chromatography (RP-HPLC) method and validate as per ICH guidelines for simultaneous determination of simvastatin and niacin in a combined dosage form.

**Methods:** The chromatographic separation of the two cholesterol lowering drugs were achieved using Inertsil CN (5 µm, 250 mm x 4.6 mm i. d. column), maintained at 30 °C throughout the analysis. The drugs were separated in isocratic elution mode with a mobile phase of 0.1% acetic acid buffer-methanol (50:50, v/v) at a flow rate of 1.0 mL/min and a detection wavelength of 237 nm using a UV-PDA detector.

**Results:** The linearity and range for niacin and simvastatin were 0.05 to 0.150 mg/mL ( $R^2 > 0.9999$ ) and 0.004 to 0.012 mg/mL ( $R^2 > 0.9992$ ), respectively. Mean recoveries observed for niacin and simvastatin were 99.36% and 99.93%, respectively. The precision of the method obtained was 99.66% for niacin and 99.34% for simvastatin with a relative standard deviation less than 2%. The lower degree of % RSD that was obtained for intermediate precision has proved that the method is robust and rugged.

**Conclusion:** A simple and rapid stability-indicating RP-HPLC method was developed and validated for simultaneous determination of niacin and simvastatin in a combined dosage form and hence, it can be used in the quality control analysis of an active pharmaceutical ingredient and pharmaceutical dosage form.

**Keywords:** Simvastatin, Niacin, RP-HPLC, Stability, Validation.

Nalliah S, Karikalan B, Kademane K. Multifaceted usage of HPV related tests and products in the management of cervical cancer - A review. *Asian Pacific Journal of Cancer Prevention*, 2015; 16(6): 2145-50. (SCI IF: 1.686; H-Index: 38; Tier: Q3).

## **Multifaceted usage of HPV related tests and products in the management of cervical cancer - A review.**

Sivalingam Nalliah<sup>1</sup>, Barani Karikalan<sup>2</sup>, Kumaraswamy Kademane<sup>2</sup>.

<sup>1</sup>Division of Human Development and Population Health, Clinical School,

<sup>2</sup>School of Medicine, International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

HPV viruses are integral to the development of cervical cancer. The pathogenesis has been extensively studied. To date, numerous HPV tests and products have been developed and successfully utilized in diagnosis, treatment and prevention of cervical cancer. The HPV DNA test, when combined with other routine cervical cancer screening and diagnostic tests namely exfoliative cytology, visual inspection with acetic acid (VIA) and colposcopy has increased the detection rate of cervical cancer. HPV DNA products could also be measured in other body fluids like urine, lymph node tissue, and serum. HPV association could also be quantified by measuring other parameters like HPV mRNA, viral load, viral integration and methylation status. Vaccination against HPV has been found to decrease the incidence of cervical cancer. Further, therapeutic vaccines for cervical cancer against HPV continue to evolve. All these findings pertaining to HPV could possibly decrease the incidence of cervical cancer in the near future. This review aims to give an overview of the HPV tests and products in use and those under trial currently.

**Keywords:** HPV, DNA test, triage, cervical intraepithelial lesion, cervical cancer.

Nalliah S, Pereira J, Lim ST, Jayasingam V, Phang GG. Is Google search a useful medical diagnostic tool for third year medical students? *IeJSME*, 2015; 9(3): 33-37. (MyCite IF: 0.038).

## **Is Google search a useful medical diagnostic tool for third year medical students?**

Sivalingam Nalliah<sup>1</sup>, Joanne Pereira<sup>2</sup>, Lim Shin Tom<sup>2</sup>, Vyshanavi Jayasingam<sup>2</sup>, Phang Gin Ga<sup>2</sup>.

<sup>1</sup>Consultant Obstetrician and Gynaecologist Clinical School, International Medical University, Jalan Rasah, 70300 Seremban, MALAYSIA

<sup>2</sup>Medical Student, Clinical School, International Medical University, Jalan Rasah, 70300 Seremban, MALAYSIA

### **Abstract**

**Introduction:** In recent years, the internet has become an increasingly popular tool for people to obtain information due to the overwhelming availability of material. As internet access becomes more readily available, the newer generation of patients, medical students and doctors are starting to prefer the internet as a source of reference to acquire medical knowledge. The main objectives of this study were to determine the accuracy of using Google search in establishing a clinical diagnosis based on information provided from the New England Journal of Medicine (NEJM) and to determine the concordance rate of Google diagnosis with the actual diagnosis from NEJM.

**Method:** The research design was a cross sectional study of 200 NEJM cases. The research team comprised of four 3rd year medical students and one senior supervisor. Google search engine was used to obtain a diagnosis. The time allocated for a Google search for each case was 20 minutes regardless of the number of websites used. The top two diagnoses were then compared to the actual diagnoses of the NEJM case and the accuracy of Google was then assessed.

**Results:** The study achieved a congruence of 71.5%. This is considered acceptable and satisfactory as the cases presented in NEJM covered a wide variety of problems and encompassed rare diseases.

**Conclusion:** From the final results obtained, it can be concluded that with the aid of Google, medical students in their 3rd year of their Bachelor of Medicine and Bachelor of Surgery programme are able to obtain a reasonable clinical diagnosis.

**Keywords:** Google search, diagnosis, clinical case, congruency.

Nalliah S. Strategic interventions in management of gestational diabetes mellitus to reduce type 2 DM in Malaysia. *Medical Journal of Malaysia*, 2015; 70(4): 211-213. (SCI IF: 0.6; H-Index: 21; Tier: Q3).

## **Strategic interventions in management of gestational diabetes mellitus to reduce type 2 DM in Malaysia.**

Sivalingam Nalliah.

Department of Obstetrics and Gynaecology, Clinical School, International Medical University, Jalan Rasah, Seremban, Negeri Sembilan.

### **Abstract**

According to the Global status report on non-communicable diseases 2010, the prevalence of high blood sugars among adults exceeds 11 % in both males and females in Malaysia. This is the highest among ASEAN countries. This ties up closely with the prevalence of overweight adults in both sexes in the same report, again Malaysians rank highest among ASEAN countries. The burden of diabetes mellitus in Malaysia is estimated to be 12% of the population with a projected figure exceeding 15 % in 2020.

This enormous rise in both obesity and hyperglycaemia in adults is alarming and clear strategies to combat this non communicable disease is urgently warranted. One such strategy is to relook at the focussed approach of gestational diabetes mellitus (GDM) management currently in vogue in Malaysia, and suggest more effective preventive measures in view of information currently coming to light on both short and long term implications of GDM on both mother and offspring.

Although information on actual prevalence of GDM in Malaysia is lacking, available crude data from hospital births obtained from the National Obstetric Register in 2010 involving 14 major government hospitals was 9.9% with Indians ranking highest followed by Malays and Chinese. Incidence of macrosomia in GDM mothers was double that of non-GDM mothers. A higher caesarean section rate with a threefold increase in shoulder dystocia was also recorded in those with GDM.

Ng MF, Ooi BY, Siew WF. Factors deterring registered nurses from pursuing post graduate nursing degree in a private hospital in Penang, Malaysia. *IeJSME*, 2015; 9(3): 38-46. (MyCite IF: 0.038).

## **Factors deterring registered nurses from pursuing post graduate nursing degree in a private hospital in Penang, Malaysia.**

Mei Foong Ng, Bee Yean Ooi, Wei Fern Siew.

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### **Abstract**

**Background:** In Malaysia the percentage of diploma registered nurses outnumber the percentage of degree registered nurses. Internationally, most registered nurses earn associate degrees or bachelor's degrees in nursing. Malaysia is in the pipeline of ensuring that its registered nurses are professionally qualified with nursing degree by year 2020. Registered nurses with diploma qualification are feeling the pressure to upgrade their qualification to degree. There are concerns as to why these nurses are not pursuing their post registration nursing degree.

**Objective:** To determine factors that are deterring the registered nurses of a private hospital in Penang from pursuing the post registered nursing degree.

**Methods:** This descriptive study utilised a convenient sample of 150 registered nurses from Lam Wah Ee Hospital in Penang. The instrument of this study was developed based on literature search and the conceptual framework of Force Fields Analysis developed by Kurt Lewin in 1952.

**Results:** The deterring factors for registered nurses not pursuing post registration nursing degree from this hospital were determined through negative mean score, which was valued at less than 2.5. The top 3 deterring factors identified were: high educational cost, with a score of 1.92; financial commitment, with a score of 2.22 and time constraints and high workload, with a score of 2.27.

**Conclusions:** High educational cost, financial commitment, time constraint and high workload were the main factors deterring the registered nurses from this hospital from pursuing their post registration nursing degree. Thus it is timely for the organisational management to consider workable measures to assist and motivate their nurses to upgrade themselves with nursing degree in line with Malaysia's vision to meet the increasing challenges and complex needs in the care of clients in health services.

**Keywords:** bachelor degree in nursing; continuing education; nursing education; Malaysian nurses.

Nisha M, Kumarasamy V, Ambu S, Davamani F, Mak JW. Factors associated with intestinal parasite infections in a resettled indigenous community in Malaysia. *International Journal of Tropical Disease and Health*, 2015; 12(3): 1-7, 2016, Article no.IJTDH.21902. (IF: NA).

## **Factors associated with intestinal parasite infections in a resettled indigenous community in Malaysia.**

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### **Abstract**

In Malaysia, the Orang Asli community (the indigenous people of Malaysia) are prone to intestinal parasite infections (IPIs) due to their living environment, socio-cultural and personal hygiene practices. The prevalence and potential risk factors for infection among the indigenous community in Kg. Serendah in Malaysia was investigated. Stool samples were collected from 110 participating villagers who were then interviewed to obtain information on socio-demographic, behavioural, and environmental sanitation. The stool samples were processed and the parasites were identified by microscopy. To identify risk factors associated with intestinal parasite infection univariate and multivariate analysis were done. The level of significance was set at  $p<0.5$  and for each statistically significant factor, odd ratios and confidence interval was computed. The prevalence for IPIs in the community was 67% and the intestinal parasites detected were *Trichuris trichiura* (50%), *Ascaris lumbricoides* (39%), *Blastocystis hominis* (10%), *Cryptosporidium parvum* (7.2%), *Taenia* spp (2.7%) and *Microsporidia* (2.7%). Forty five percent among them had a single infection while 46% had double infections with triple infections constituting 9.5%. Overall the prevalence of IPIs was slightly higher for females (68%) compared to males (66%). Higher IPIs prevalence was observed among children below 7 years compared to the adults. Univariate analysis showed that not using sanitary latrine, source of water supply and not boiling water before drinking and not using footwear were potential risk factors for intestinal parasite infection. However multivariate analysis indicated that not using the toilet and drinking unboiled water was predictive of intestinal parasite infection in this community.

**Keywords:** Intestinal parasites; prevalence; indigenous community; Malaysia; helminths.

Norhafiza R, Agarwal R, Agarwal P, Kapitonova MY, Kutty MK, Smirnov A, Nor Salmah B, Ismail NM. Anterior and posterior segment changes in rat eyes with chronic steroid administration and their responsiveness to antiglaucoma drugs. *European Journal of Pharmacology*, 2015; 749: 73-80. (ISI IF: 2.532; SCI IF: 2.637; H-Index: 138; Tier: Q2).

## **Anterior and posterior segment changes in rat eyes with chronic steroid administration and their responsiveness to antiglaucoma drugs.**

Norhafiza Raza<sup>1,2</sup>, Renu Agarwal<sup>1,2</sup>, Puneet Agarwal<sup>3</sup>, Marina Y Kapitonova<sup>1,4</sup>, Methil Kannan Kutty<sup>1,4</sup>, Alexey Smirnov<sup>5</sup>, Nor Salmah Bakar<sup>1,4</sup>, Nafeeza M. Ismail<sup>1,2</sup>.

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<sup>5</sup>Pathological Anatomy Department, Volgograd State Medical University, 1, Pavshikh Bortsov Square, Volgograd 400131, Russia

### **Abstract**

Steroid-induced ocular hypertension (SIOH) is associated with topical and systemic use of steroids. However, SIOH-associated anterior and posterior segment morphological changes in rats have not been described widely. Here we describe the pattern of intraocular pressure (IOP) changes, quantitative assessment of trabecular meshwork (TM) and retinal morphological changes and changes in retinal redox status in response to chronic dexamethasone treatment in rats. We also evaluated the responsiveness of steroid-pretreated rat eyes to 5 different classes of antiglaucoma drugs that act by different mechanisms. Up to 80% of dexamethasone treated animals achieved significant and sustained IOP elevation. TM thickness was significantly increased and number of TM cells was significantly reduced in SIOH rats compared to the vehicle-treated rats. Quantitative assessment of retinal morphology showed significantly reduced thickness of ganglion cell layer (GCL) and inner retina (IR) in SIOH rats compared to vehicle treated rats. Estimation of retinal antioxidants including catalase, superoxide dismutase and glutathione showed significantly increased retinal oxidative stress in SIOH animals. Furthermore, steroid-treated eyes showed significant IOP lowering in response to treatment with 5 different drug classes. This indicated the ability of SIOH eyes to respond to drugs acting by different mechanisms. In conclusion, SIOH was associated with significant morphological changes in TM and retina and retinal redox status. Additionally, SIOH eyes also showed IOP lowering in response to drugs that act by different mechanisms of action. Hence, SIOH rats appear to be an inexpensive and noninvasive model for studying the experimental antiglaucoma drugs for IOP lowering and neuroprotective effects.

**Keywords:** Rat, histology, retina, IOP, steroid, trabecular network.

Norimah AK, Koo HC, Hamid Jan JM, Mohd Nasir MT, Tan SY, Appukutty M, Nurliyana AR, Thielecke F, Hopkins S, Ong MK, Ning C, Tee ES. Whole grain intakes in the diets of Malaysian children and adolescents – Findings from the MyBreakfast Study. *PLOS ONE*, 2015; DOI: 10.1371/journal.pone.0138247. (SCI IF: 3.197; H-Index: 153; Tier: Q1).

## Whole grain intakes in the diets of Malaysian children and adolescents – Findings from the MyBreakfast Study.

Norimah AK<sup>1,10</sup>, H. C. Koo<sup>1,2,10</sup>, Hamid Jan JM<sup>3,10</sup>, Mohd Nasir MT<sup>4,10</sup>, S. Y. Tan<sup>5,10</sup>, Mahendran Appukutty<sup>6,10</sup>, Nurliyana AR<sup>4,10</sup>, Frank Thielecke<sup>7,8</sup>, Sinead Hopkins<sup>7</sup>, M.K. Ong<sup>9</sup>, C. Ning<sup>9</sup>, E. S. Tee<sup>10</sup>.

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<sup>7</sup>Cereal Partners Worldwide, Lausanne, Switzerland,

<sup>8</sup>Nestlé Research Center, Vers chez les Blanc, Lausanne, Switzerland,

<sup>9</sup>Nestle R&D Center, Singapore, Singapore,

<sup>10</sup>Nutrition Society of Malaysia, c/o Division of Human Nutrition, Institute for Medical Research, Kuala Lumpur, Malaysia

### Abstract

**Background:** Diets rich in whole grain are associated with several health benefits. Little is known however, about whole grain consumption patterns in Malaysia. The aim of this study was to assess whole grain intakes and dietary source in Malaysian children and adolescents.

**Methods:** This analysis is from the MyBreakfast study, a national cross sectional study investigating eating habits among primary and secondary school children throughout Malaysia, conducted in 2013. Children (n = 5,165) and adolescents (n = 2,947) who completed two days of dietary assessment using a food record or recall respectively were included. The whole grain content of foods was estimated mainly through the use of quantitative ingredient declarations on food labels. All wholegrain foods were considered irrespective of the amount of whole grain they contained.

**Results:** Overall, only 25% of children and 19% of adolescents were wholegrain consumers. Mean daily intakes in the total sample were 2.3g/d (SD 5.8g/d) in children and 1.7g/d (SD 4.7g/d) in adolescents and in the consumer's only sample, mean intakes reached 9.1g/d (SD 8.6) and 9.2g/d (SD 7.1g/d) respectively. Wheat was the main grain source of whole grain while ready to eat breakfast cereals and hot cereals were the main food contributors. Less than 3% of the children and adolescents reached the US quantitative whole grain recommendation of 48g/day.

**Conclusion:** Whole grain is consumed by only a minority of Malaysian children and adolescents and even among consumers, intakes are well below recommendations. Efforts are needed to firstly understand the barriers to whole grain consumption among Malaysian

children in order to design effective health promotion initiatives to promote an increase in whole grain consumption.

Ooi IH, Ng SH, Chong YK, Wong SK. Swelling properties of poly(N-isopropylacrylamide)/calcium alginate interpenetrating polymer network hydrogel containing zirconia. *Asian Journal of Chemistry*, 2015; 27(9): 3489-3493. [IMU BPharm Sem 7 grant]. (SCI IF: 0.383; H-Index: 23; Tier: Q3).

## **Swelling properties of poly(N-isopropylacrylamide)/ calcium alginate interpenetrating polymer network hydrogel containing zirconia.**

Ooi Ing Hong, Ng Shi Hui, Chong Yie Kie, Wong See Kiat.

Department of Pharmaceutical Chemistry, School of Pharmacy, International Medical University, 126, Jalan Jalil Perkasa 19, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

### **Abstract**

Temperature-responsive poly(N-isopropylacrylamide)/calcium alginate interpenetrating polymer network hydrogels containing different percentages of zirconia were prepared and evaluated for their swelling properties. The pore size of the interpenetrating polymer network hydrogels decreased with increasing content of zirconia. Incorporation of zirconia into the interpenetrating polymer network hydrogel decreased its ability to swell at temperatures below its lower critical solution temperature but resulted in larger shrinkages at temperatures above its lower critical solution temperature. The swelling-deswelling behaviour of the interpenetrating polymer network hydrogels between 25 °C and 37 °C was, however, rapid, responsive and reproducible.

**Keywords:** Poly(N-isopropylacrylamide)/Calcium alginate, Hydrogel, Zirconia, Swelling ratio, Interpenetrating polymer network.

Ooi IH, Ng SH. Effects of microemulsion conditions on drug encapsulation efficiency of salicylic acid in PLGA microparticles. *Asian Journal of Chemistry*, 2015; 27(4): 1358-1360. [IMU BPharm Sem 7]. (SCI IF: 0.383; H-Index: 23; Tier: Q3).

## **Effects of microemulsion conditions on drug encapsulation efficiency of salicylic acid in PLGA microparticles.**

Ing Hong Ooi, Set Hui Ng.

Department of Pharmaceutical Chemistry, School of Pharmacy, International Medical University, 126, Jalan Jalil Perkasa 19, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

### **Abstract**

Various microemulsion generation conditions in emulsion solvent evaporation technique can affect the encapsulation efficiency of a drug. In this study, homogenization speed, homogenization temperature and organic-to-aqueous phase ratio were varied and the resulting encapsulation efficiency of a model hydrophobic drug i.e., salicylic acid, in poly(lactide-co-glycolide) (PLGA) microparticles was determined using UV spectrophotometry. Results showed that the encapsulation efficiency of salicylic acid ranged from 8.5 to 17 % depending on the microemulsion conditions. Under the same temperature (15 °C) and homogenization speed (19000 rpm) conditions studied, a relatively high organic-to-aqueous phase ratio (1:5) provided salicylic acid loaded PLGA microparticles with significantly higher drug encapsulation efficiency. In addition, under all microemulsion conditions, PLGA microparticles obtained were spherical and aggregation between the particles was not observed. This indicates that PLGA microparticles with desirable amount of drug and with anticipated size and shape could be realized by controlling emulsification process conditions.

**Keywords:** Poly(lactide-co-glycolide), Emulsion solvent evaporation, Microparticles, Encapsulation efficiency, Salicylic acid.

Palanisamy UD, Sivanathan M, Subramaniam T, Radhakrishnan AK, Haleagrahara N, Sundralingam US, Gan SC. Refining ostrich oil and its stabilization with curcumin. *Journal of Nutritional Health & Food Engineering*, 2015; 2(2): 00051. (IF: NA). [IMU 165-2008].

## **Refining ostrich oil and its stabilization with curcumin.**

Uma D Palanisamy<sup>1</sup>, Muniswaran Sivanathan<sup>2</sup>, Thavamanithevi Subramaniam<sup>3</sup>, Ammu K Radhakrishnan<sup>2</sup>, Nagaraja Haleagrahara<sup>4</sup>, Usha Sundralingam<sup>1</sup> and Gan Seng Chiew<sup>5</sup>.

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<sup>3</sup>Sirim Berhad, Malaysia

<sup>4</sup>Department of Medicine Health and Molecular Sciences, James Cook University, Australia

<sup>5</sup>Department of Medicine and Health Sciences, Universiti Tunku Abdul Rahman, Malaysia

### **Abstract**

Ostrich Oil is particularly known for its cosmetic and therapeutic use. Being rich in polyunsaturated fatty acids, it is prone to oxidation causing undesirable changes in peroxide value, color, flavour and odor, which deteriorates its nutritional value. The objective of the study is to establish an efficient separation method to refine ostrich oil and stabilize it with curcumin or the extract of *Curcuma longa*. The reduction in peroxide value, color intensity, moisture content and odor were used as indicators of the purity of the oil. The modified refining process developed saw a reduction of 75% free fatty acid, 90% peroxide value, 54% moisture content, 60% in color intensity and odor. Curcumin, a natural antioxidant, prevented lipid peroxidation by 56% while vitamin E by only 8%, when tested at the same concentration (0.04%). Curcumin proved to be an effective stabilizer in a 6-month accelerated stability test. This study presents a method to refine ostrich oil efficiently and the ability of a natural antioxidant, curcumin, to stabilize the refined ostrich oil. This simple and straight forward method to refine and stabilize the oil can be adapted to be used for any ratite oils. The use of a natural alternative, curcumin as the anti-oxidant is not only safe but provides further added health benefits.

**Keywords:** Ostrich oil; Refining; Oxidation; Stabilization; Anti-oxidant; Curcumin.

Parvaneh K, Mahdi E, Mohd Redzwan S, Golgis Ki, Ng AMH, Abdul-Majeed S, Zuraini A, Zuriati I, Rosita J. Probiotics (*Bifidobacterium longum*) increase bone mass density and upregulate Sparc and Bmp-2 genes in ovariectomized-induced bone loss rats. *BioMed Research International*, 2015; Volume 2015: Article ID 897639. Doi: <http://dx.doi.org/10.1155/2015/897639>. (ISI IF: 1.579; SCI IF: 1.561; H-Index: 51; Tier: Q2).

## **Probiotics (*Bifidobacterium longum*) increase bone mass density and upregulate Sparc and Bmp-2 genes in ovariectomized-induced bone loss rats.**

Kolsoom Parvaneh<sup>1</sup>, Mahdi Ebrahimi<sup>2</sup>, Mohd Redzwan Sabran<sup>1</sup>, Golgis Karimi<sup>1</sup>, Angela Ng Min Hwei<sup>3</sup>, Saif Abdul-Majeed<sup>4</sup>, Zuraini Ahmad<sup>5</sup>, Zuriati Ibrahim<sup>1</sup>, and Rosita Jamaluddin<sup>1</sup>.

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### **Abstract**

Probiotics are live microorganisms that exert beneficial effects on the host, when administered in adequate amounts. Mostly, probiotics affect the gastrointestinal (GI) tract of the host and alter the composition of gut microbiota. Nowadays, the incidence of hip fractures due to osteoporosis is increasing worldwide. Ovariectomized (OVX) rats have fragile bone due to estrogen deficiency and mimic the menopausal conditions in women. Therefore, this study aimed to examine the effects of *Bifidobacterium longum* (*B. longum*) on bone mass density (BMD), bone mineral content (BMC), bone remodeling, bone structure, and gene expression in OVX rats. The rats were randomly assigned into 3 groups (sham, OVX, and the OVX group supplemented with 1mL of *B. longum* 108–109 colony forming units (CFU)/mL). *B. longum* was given once daily for 16 weeks, starting from 2 weeks after the surgery. The *B. longum* supplementation increased ( $p < 0.05$ ) serum osteocalcin (OC) and osteoblasts, bone formation parameters, and decreased serum C-terminal telopeptide (CTX) and osteoclasts, bone resorption parameters. It also altered the microstructure of the femur. Consequently, it increased BMD by increasing ( $p < 0.05$ ) the expression of Sparc and Bmp-2 genes. *B. longum* alleviated bone loss in OVX rats and enhanced BMD by decreasing bone resorption and increasing bone formation.

Patil PG, Muley B. Two step impression technique for implant restorations. *Journal of Dental Implants*, 2015; 5: 60-1. (IF: NA).

## **Two step impression technique for implant restorations.**

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<sup>1</sup>Division of Clinical Dentistry, School of Dentistry, International Medical University, Kuala Lumpur, Malaysia,

<sup>2</sup>Department of Prosthodontics, Government Dental College and Hospital, Nagpur, Maharashtra, India

### **Abstract**

Two-step (spacer used with the putty impression first and then the wash stage) impression technique is commonly used for making impressions in conventional fixed dental prostheses. Impressions for implant fixed restorations are usually taken in 1-step. This article describes two-step impression technique for the implant fixed restorations. With the 2-step putty-wash impression technique described in this article, pressure developed on the impression analogues is negligible hence more accuracy and less deformation can be achieved.

**Keywords:** Dental implants, elastomeric impressions, impression.

Patil PG, Nimbalkar-Patil S, Karemire V. Mandibular Implant-supported overdenture as an occlusion-guide for maxillary fixed implant prosthesis: A clinical report. *International Journal of Oral Implantology and Clinical Research*, 2015; ISSN: 0975-6523. (Article in Press). (IF: 5.02).

## **Mandibular Implant-supported overdenture as an occlusion-guide for maxillary fixed implant prosthesis: A clinical report.**

Pravinkumar G Patil.

Department of Restorative Dentistry, International Medical University, Malaysia

### **Abstract**

Unlike natural teeth, osseointegrated implants react biomechanically in a different fashion to occlusal load due to lack of the periodontal ligament. Hence, the dental implants may be more prone to occlusal overloading, which is often regarded as one of the potential causes for peri-implant bone loss and failure of the implant/implant prosthesis. Stability of the intercuspal position and reduction of lateral forces are important aspects when providing occlusal equilibration for implant supported prosthesis. Multiple missing teeth in maxillary and mandibular arches with disturbed occlusal plane due to long-term edentulous condition and over-eruption of remaining teeth into the edentulous spaces is the challenging clinical situation. This article describes the management of a patient with multiple missing teeth in both the arches with mandibular implant-supported overdenture and maxillary implant supported fixed prosthesis. The sequence of the treatment planning is highlighted to manage the complex situation to achieve the best predictable occlusion.

**Keywords:** Dental implants, Implant-supported overdentures, Implant restorations, Occlusion, Full mouth rehabilitation.

Patil PG, Nimbalkar-Patil S. A radiographic measurement technique for crest bone changes related to dental implants. *Journal of Prosthetic Dentistry*, 2015; 113: 350-1. (IF: NA).

## **A radiographic measurement technique for crest bone changes related to dental implants.**

Pravinkumar G. Patil<sup>1</sup>, and Smita Nimbalkar-Patil<sup>2</sup>.

<sup>1</sup>Senior Lecturer, School of Dentistry, International Medical University, Kuala Lumpur, Malaysia.

<sup>2</sup>Lecturer, Department of Orthodontics, Faculty of Dentistry, MAHSA University, Kuala Lumpur, Malaysia.

### **Abstract**

The evaluation of crestal bone loss to assess implant success rate with radiographs and/or computerized tomography scans has been well described. After implant placement and at subsequent recall appointments, clinicians typically make an intraoral periapical radiograph. However, at each appointment, there are changes in the radiographic image. Conventionally, the distance between the first screw thread to the top of the alveolar crest in the parallel periapical radiograph is measured to assess crestal bone changes. This distance is sometimes so small that precise measurement is difficult between these 2 close points. To minimize inconsistencies and measurement errors, we propose to measure the radiographic crestal bone level from the tip of the implant body instead of the first screw thread. This method can be used with simple measuring devices such as calipers, or with more specialized measurement software (Eigentool, Henry Ford; Health System). The technique is applicable to implants with well-defined shoulders and can be used in both routine clinical practice and for research purposes, although it must be better validated for measurement errors as well as defined accuracy and precision.

Patil PG, Nimbalkar-Patil S. Two colored dental surveying tool as an alternative for carbon marker. *Journal of Prosthodontics*, 2015; (Accepted on 5th September 2015). (ISI IF: 1.071; SCI IF: 1.131; H-Index: 35; Tier: Q2).

## **Two colored dental surveying tool as an alternative for carbon marker.**

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<sup>2</sup>Department of Orthodontics, Faculty of Dentistry, MAHSA University, Kuala Lumpur, Malaysia.

### **Abstract**

Various tools are used with a dental surveyor, including analyzing rods, carbon markers, undercut gauges, and protective sheaths for a specific function. A carbon marker is a parallel-sided carbon rod used to mark the survey line on a cast or a crown on a cast. The carbon marker (with or without protective sheath) cannot differentiate more than one survey line on the cast if needed. The wear of the carbon marker along the parallel walls after repeated use may give an incorrect survey line. We suggest a simple modification in the analyzing rod to prepare a two-colored surveying tool. An analyzing rod is a parallel-sided rod used to analyze the relative parallelism of two or more surfaces of a cast and to mark survey lines on wax patterns. With the modified analyzing rod, the survey lines can be marked with two colors, and the problem of breaking of the carbon marker also can be eliminated.

**Keywords:** Dental surveyor; dental surveying and designing; removable partial denture.

Patil PG, Nimbalkar-Patil. Maxillomandibular relationship record for complete arch/mouth implant restorations using putty-elastomeric occlusion rim at healing abutment level. *Contemporary Clinical Dentistry*, 2015; 6(3): 318-20. (IF: NA).

## **Maxillomandibular relationship record for complete arch/mouth implant restorations using putty-elastomeric occlusion rim at healing abutment level.**

Pravinkumar G. Patil<sup>1</sup>, Smita Nimbalkar-Patil<sup>2</sup>.

<sup>1</sup>Division of Clinical Dentistry, School of Dentistry, International Medical University,

<sup>2</sup>Department of Orthodontics, Faculty of Dentistry, MAHSA University, Kuala Lumpur, Malaysia

### **Abstract**

**Introduction:** Recording of the maxillomandibular relationship (MMR) in implant complete arch restorations usually necessitates removal of the healing abutments to attach the record bases, which makes the procedures tedious and time-consuming.

**Materials and Methods:** This article describes the procedure of recording of MMR for complete mouth rehabilitation with the help of the putty elastomeric record base cum occlusion rim reinforced with the acrylic resin framework. This technique records the MMR without removing the healing abutments from mouth and without attaching the acrylic-resin record base with wax occlusion rim.

**Results:** The use of putty-elastomeric occlusion rim provides stable interocclusal records for implant supported complete arch (or mouth) rehabilitation.

**Conclusion:** Maxillomandibular relationship records made with the present technique is less time consuming and accurate with less chances of distortion of the MMR records.

**Keywords:** Implant restorations, maxillomandibular relation, occlusion rim, record base.

Patil PG. Editorial 2: Mini implants for overdentures. *International Journal of Prosthodontics and Restorative Dentistry*, 2015; 5(1): V. (IF: NA).

## **Editorial 2: Mini implants for overdentures.**

Pravinkumar G. Patil

School of Dentistry, International Medical University (IMU).

### **Abstract**

Implant-supported dentures including either complete overdentures or a hybrid prosthesis significantly improve the quality of life for edentulous patients compared with conventional removable complete dentures. Consensus statements (made by the expert teams) in 2002, 2009 and 2011 from symposia in Canada, England and the US respectively, suggested that the first-choice standard of care for an edentulous mandible should be the two-implant retained mandibular overdentures. However, the diameter of standard implants (approximately 3.5 mm) sometimes may need bone augmentation and limit their use for those who have lesser bone width and do not really want to go for further surgical procedures.

The introduction, approval and continuous observation of success of smaller-diameter mini-implants have stimulated use of implants in situations in which standard-sized implants could not be used without grafting. The diameter of mini-implant is less than 3mm, unusually manufactured with the width of 1.8, 2.1, 2.4 and 2.9 mm. The mini-implants are one-piece implants; having lesser manufacturing cost than two-piece standard implants and hence are less costly. Also, there is no risk of abutment screw loosening, hence less micro-organisms harbor in surrounding cresatal bone. The mini implants preferably can be placed without much manipulation of soft tissues and can be immediately loaded. The result has been more patients who can be served successfully at reduced cost with minimized pain and trauma, and who could not have been treated with implants otherwise.

Liu et al evaluated strain distribution in peri-implant bone of mandibular overdentures anchored by different numbers of implants under different loading conditions, through the 3D finite element analysis (FEA), and suggested that the number of implants does not significantly affect the strain pattern. Jofre et al carried out the FEA and clinical trial, evaluating marginal bone loss of 2 year follow-up with two splinted vs two unsplinted mini-implant-retained overdentures. A finite element analysis showed the minimum principal stress ( $-118$  MPa) in bone surrounding the unsplinted mini-implant as compared to splinted implants ( $-56.8$  MPa). After 2 years of follow-up in the clinical study, unsplinted mini-dental implants showed marginal bone loss of  $1.43 \pm 1.26$  mm, while splinted one showed  $0.92 \pm 0.75$  mm. Mangano et al placed a total of 231 one-piece direct metal laser sintering (DMLS) mini-implants in 62 patients and found that overall cumulative survival rate was 96.9% and the mean marginal bone loss was  $0.38 \pm 0.25$  and  $0.62 \pm 0.20$  mm at the 1 and 4 year follow-up examinations respectively. Scepanovic et al treated 30 patients with mandibular complete dentures that were retained by four immediately loaded mini-dental implants resulting in a 98.3% success rate after 1 year of loading.

The people with poor economical strata worldwide can afford to undergo the similar standard of care by reducing the cost and large population can be covered for the implant-retained-overdenture as a first choice standard of care. Only a few studies have dealt with immediately loaded, unsplinted mini-implants retained mandibular overdentures. There is a need of further biomechanical and clinical research to validate their use in routine clinical practice.

Patil PG. Editorial: Mandibular flexure and fixed long-span cross-arch implant restorations. *International Journal of Prosthodontics and Restorative Dentistry*, 2015; 5(3): IV. (IF: NA).

## **Editorial: Mandibular flexure and fixed long-span cross-arch implant restorations.**

Pravinkumar G Patil

Division of Clinical Dentistry, School of Dentistry, International Medical University, Kuala Lumpur.

### **Abstract**

The mandible is the largest, strongest and lowest bone in the face. The body of the mandible is a curved structure which articulates with the two temporal bones at the temporomandibular joints. Medial mandibular flexure is a functional elastic deformation characterized by medial convergence of hemimandibles in jaw opening and protrusion movements. Burch and Borchers demonstrated a change in the mandibular width during opening and protrusion of the jaw and found an average decrease in the width of the mandible by 0.61 mm. Similarly, Novak found that the mandibular flexure range varies between 0.3 and 1.0 mm.

Complete arch rehabilitation of the edentulous mandible with the fixed long-span cross-arch bridges supported by natural abutments or implants is a common clinical situation. These abutment teeth or implants become loose or get dislodged after a period of usage. Misch in 1999 has stated that, when posterior rigid fixed implants were splinted to each other in a cross-arch restoration, they were subjected to considerable buccolingual force on opening due to mandibular flexure. In this regards, Zarone et al carried out the three-dimensional (3D) finite element analysis of human edentulous mandible to study the deformations and stress distributions in six different designs of implant-supported prosthetic systems (six or four implants, with or without distal cantilevers, cross-arch or midline-divided bar into two free-standing bridges). The analysis suggested that a division of the superstructure at the level of the symphysis significantly allows the natural functional flexure of the mandible. Law et al in 2012 reviewed 20 selected articles to determine the effect of mandibular flexure on the implant-framework system. The review suggested that dividing the prosthesis at the symphysis region, or into multiple implant fixed dental prostheses, may minimize the effect of mandibular flexure on the implant prosthesis. Even during making the impressions, the jaw opening causes the mandibular flexure leading to compromised accuracy in casts and subsequent prostheses. Hence, the impressions should be made with the patient's mouth in a partially closed unstrained mandibular position.

With current clinical advancements in implant dentistry, varieties of options are being suggested to create the implant superstructures for edentulous mandible including six or four implants, with or without distal cantilevers, cross-arch or midline-divided bar or hybrid prosthesis. Hence, it is necessary to understand the nature of flexure of the mandible during its movements. However, the clinical significance of mandibular flexure on the success of dental implant treatment is still unclear and further biomechanical and clinical research is needed.

Pau A, Sabri BA. Relationship between emotional intelligence and job satisfaction in newly qualified Malaysian dentists. *Asia-Pacific Journal of Public Health*, 2015; 27(2): NP1733–NP1741. (ISI IF: 1.459; SCI IF: 0.816; H-Index: 19; Tier: Q2).

## **Relationship between emotional intelligence and job satisfaction in newly qualified Malaysian dentists.**

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<sup>2</sup>Universiti Teknologi MARA, Shah Alam, Malaysia

### **Abstract**

Job satisfaction (JS) is considered to be a key factor in workforce retention. This article reports on the association between emotional intelligence (EI) and JS in newly qualified dentists employed in the Malaysian 3-year compulsory service. A postal questionnaire survey collected data on sociodemographic and occupational characteristics, EI, and JS. In a sample of 342 (58.9%) respondents, sociodemographic characteristics were not statistically significantly associated with both EI and JS total scores, whereas overseas graduates scored more highly on the EI scale compared with local graduates. Linear regression analysis indicated that EI was the only statistically significant predictor of JS. EI was statistically significantly associated with JS with patient relationships ( $r = 0.28$ ;  $P = .001$ ), peer support ( $r = 0.30$ ;  $P = .001$ ), professional development ( $r = 0.21$ ;  $P = .001$ ), quality of care ( $r = 0.57$ ;  $P = .001$ ), supporting staff ( $r = 0.24$ ;  $P = .001$ ), overall JS ( $r = 0.28$ ;  $P = .001$ ), and total JS score ( $r = 0.40$ ;  $P = .001$ ). However, EI was not statistically significantly associated with JS with income ( $r = 0.06$ ;  $P = .302$ ). These findings have implications for the development of interventions to enhance EI and JS in order to promote retention of dentists in the public sector.

**Keywords:** emotional intelligence, job satisfaction, professional competence, dentists, workforce, staff retention.

Rajiah K, Maharajan MK, Nair S. Pharmacy students' knowledge and perceptions about adverse drug reactions reporting and pharmacovigilance. *Saudi Pharmaceutical Journal*, 2015; (in press). doi: 10.1016/j.jsps.2015.03.021. (BPharm Project BP-I-01/11(27)2014). (ISI IF: 1.00; SCI IF: 1.47; H-Index: 14; Tier: Q2).

## **Pharmacy students' knowledge and perceptions about adverse drug reactions reporting and pharmacovigilance.**

Kingston Rajiah<sup>1</sup>, Mari Kannan Maharajan, Shashina Nair.

<sup>1</sup>Department of Pharmacy Practice, School of Pharmacy, International Medical University, Kuala Lumpur 57000, Malaysia

### **Abstract**

Pharmacy students' knowledge about adverse drug reaction reporting can impact their attitude towards patient care and issues on patient safety. The aim of this study was to investigate the knowledge and perception of pharmacy students about adverse drug reaction reporting and pharmacovigilance and to study their willingness to report. A cross-sectional study using a validated questionnaire was conducted among the university students. The demographic details of the respondents were studied. The number of female respondents was comparatively higher than the male respondents. There were no significant differences by gender regarding the knowledge on adverse drug reaction reporting and pharmacovigilance except with the knowledge of post-marketing surveillance for which male students appeared to be more knowledgeable than female students. The results showed that the pharmacy students had sufficient knowledge and there are significant differences in perception among the students on adverse drug reaction reporting.

**Keywords:** Pharmacy students; Malaysia; Pharmacovigilance.

Rajiah K, Wong SR, Shazia QJ. Evaluation of the understanding of antibiotic resistance among Malaysian pharmacy students at public universities: An exploratory study. *Journal of Infection and Public Health*, 2015; 8(3): 266–273. (SCI IF: 1.439; H-Index: 14; Tier: Q2).

## **Evaluation of the understanding of antibiotic resistance among Malaysian pharmacy students at public universities: An exploratory study.**

Kingston Rajiah<sup>1</sup>, Wong S. Ren<sup>1</sup>, Shazia Q. Jamshed<sup>2</sup>.

<sup>1</sup>Department of Pharmacy Practice, School of Pharmacy, International Medical University, No. 126, Jalan Jalil Perkasa 19, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

<sup>2</sup>Department of Pharmacy Practice, College of Pharmacy, International Islamic University, Jalan Sultan Ahmad Shah, 25200 Kuantan, Pahang, Malaysia

### **Abstract**

**Background:** Infectious diseases are a great threat to humankind, and antibiotics are a viable proposition to numerous pathologies. However, antibiotic resistance is a global concern. Therefore, the aims of this survey were to explore the understanding and attitudes of pharmacy students regarding antibiotic use and resistance.

**Methods:** This is a cross-sectional study conducted on final-year undergraduate pharmacy students from 5 public universities. A validated, self-administered questionnaire written in English was used to collect data. It was made up of six domains and forty-five questions. Raosoft software was used to determine the minimum required sample size. Descriptive and inferential data analyses were carried out using SPSS version 20 software.

**Results:** Out of 346 students, only 59.5% showed a strong understanding of antibiotic usage, while 84.4% of students demonstrated a good level of understanding regarding the issue of antibiotic resistance. However, only 34.1% of students demonstrated a positive attitude toward this issue.

**Keywords:** Antibiotic resistance; Pharmacy students; Malaysian public universities.

Roffers SD, Menke JM, and Morris DH. A somatovisceral reflex of lowered blood pressure and pulse rate after spinal manipulative therapy in the thoracic region. *Asian Journal of Multidisciplinary Studies*, 2015; 3(6): 30-36. ISSN: 2321-8819 (Online); 2348-7186 (Print). (ISI IF: 0.92).

## **A somatovisceral reflex of lowered blood pressure and pulse rate after spinal manipulative therapy in the thoracic region.**

Roffers SD<sup>1</sup>, Menke JM<sup>2</sup>, and Morris DH<sup>3</sup>.

<sup>1</sup>Chiropractic Research Alliance, 1046 Davis Circle NW, Atlanta, GA 30318, U.S.A.

<sup>2</sup>PhD; Professor, School of Medicine; International Medical University, No. 126, Jalan Jalil Perkasa 19, Bukit Jalil, 57000, Kuala Lumpur, Malaysia.

<sup>3</sup>Medical Director; Pride Medical Inc., 3280 Howell Mill Road NW, Suite 326, Atlanta, GA 30327.

### **Abstract**

**Objective:** A randomized controlled trial (RCT) was designed to test effects of specific thoracic (T1 to T5) manipulations using an Activator instrument for changes in diastolic and systolic blood pressure, blood pressure classification, and pulse rates in 290 normotensive and hypertensive people in El Salvador.

**Methods:** Informed consent was obtained from 290 subjects meeting the inclusion criteria. They were randomly assigned to one of three groups: Control (i.e., no treatment, N=95); Placebo treatment (N=96); or Active treatment (N=99). Subjects' blood pressure and pulse rates were measured after relaxing for 15 minutes, then before intervention, and again just after treatment.

**Results:** Systolic and diastolic BP, pulse rate, and BP classification decreased significantly only in the active treatment group. No significant changes occurred in the placebo treatment and control groups. Activator treatment's effect size in changing hypertension classification as compared to no treatment was a medium  $d = 0.37$ , and  $0.45$  when compared to placebo.

**Conclusion:** Specific thoracic spinal manipulations affected three measures: blood pressure, pulse rate, and changes in hypertension classification only in the active treatment group. Findings may represent in part a rebound effect from treatment anxiety, but this alone did not account for the observations. Activator instrument's utility for sham settings was supported for future efficacy studies. The decrease was robust across several analyses, but the duration of the effect requires longer-term follow up.

**Keywords:** Spinal manipulative therapy, Somatovisceral reflex, Activator instrument, Thoracic, Systolic blood pressure, Diastolic blood pressure, Pulse rate.

Sahoo S, Barua A, Kay TM, Adnaan H, Adinegara BLA, Nair NS. Topical non-steroidal anti-inflammatory agents for diabetic cystoid macular oedema. *The Cochrane Library*, 2015. DOI: 10.1002/14651858.CD010009.pub2. (IF: NA).

## **Topical non-steroidal anti-inflammatory agents for diabetic cystoid macular oedema.**

Soumendra Sahoo<sup>1</sup>, Ankur Barua<sup>2</sup>, Kay Thi Myint<sup>3</sup>, Adnaan Haq<sup>4</sup>, Adinegara BL Abas<sup>5</sup>, N S Nair<sup>6</sup>.

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<sup>5</sup>Melaka Manipal Medical College, Department of Community Medicine, Melaka, Malaysia

<sup>6</sup>Manipal University, Department of Statistics, Manipal, Karnataka, India

### **Abstract**

**Background:** Diabetic cystoid macular oedema (CMO) is a condition which involves fluid accumulation in the inner portion of the retina. It often follows changes in retinal blood vessels which enhance the fluid to come out of vessels. Although it may be asymptomatic, symptoms are primarily painless loss of central vision, often with the complaint of seeing black spots in front of the eye. It is reported that CMO may resolve spontaneously, or fluctuate for months, before causing loss of vision. If left untreated or undiagnosed, progression of CMO may lead to permanent visual loss. It has been noted that patients with diabetic retinopathy have elevated inflammatory markers, and therefore it is likely that inflammation aids in the progression of vascular disease in these patients. Several topical non-steroidal anti-inflammatory drugs (NSAIDs) such as ketorolac 0.5%, bromfenac 0.09%, and nepafenac 0.1%, have therefore also been used topically to treat chronic diabetic CMO. Hence this review was conducted to find out the effects of topical NSAIDs in diabetic CMO.

**Objectives:** To assess the effects of topical non-steroidal anti-inflammatory drugs (NSAIDs) for diabetic cystoid macular oedema (CMO).

**Search Methods:** We searched CENTRAL (which contains the Cochrane Eyes and Vision Group Trials Register) (2014, Issue 12), Ovid MEDLINE, Ovid MEDLINE In-Process and Other Non-Indexed Citations, Ovid MEDLINE Daily, Ovid OLDMEDLINE (January 1946 to January 2015), EMBASE (January 1980 to January 2015), Latin American and Caribbean Health Sciences Literature Database (LILACS) (January 1982 to January 2015), the ISRCTN registry ([www.isrctn.com/editAdvancedSearch](http://www.isrctn.com/editAdvancedSearch)), ClinicalTrials.gov ([www.clinicaltrials.gov](http://www.clinicaltrials.gov)) and the WHO International Clinical Trials Registry Platform (ICTRP) ([www.who.int/ictrp/search/en](http://www.who.int/ictrp/search/en)). We did not use any date or language restrictions in the electronic searches for trials. We last searched the electronic databases on 12 January 2015.

**Selection Criteria:** Randomised controlled trials (RCTs) and quasi-RCTs investigating the effects of topically applied NSAIDs in the treatment of people with diabetic CMO aged 18 years of age or over.

**Data Collection and Analysis:** Two review authors independently assessed trial eligibility and screened all available titles and abstracts for inclusion. There were no discrepancies and we did not have to contact trial investigators for missing data.

**Main Results:** We did not identify any RCTs matching the inclusion criteria for this review.

**Authors' Conclusions:** The review did not identify any RCTs investigating the effects of topical NSAIDs in the treatment of diabetic CMO. Most of the studies identified through the electronic searches had been conducted to analyse the effect of topical NSAIDs for pseudophakic CMO. In the absence of high quality evidence, clinicians need to use their clinical judgement and other low level evidence, such as observational non-randomised trials, to decide whether to use topical NSAIDs in cases of diabetic CMO. More research is needed to better understand the cause of this condition and its pathophysiology. This systematic review has identified the need for well designed, adequately powered RCTs to assess possible beneficial and adverse effects of topical NSAIDs in people with diabetic CMO. Future trials should aim to include a large sample size with an adequate follow-up period of up to one year.

Sami ARA, Ahmad MQ, Ganasegeran K, Dane A, Reckelhoff KE, Hannah DW. The relationship between risky work behaviors and self-reported knee pain among Malaysian railway workers. *British Journal of Medicine & Medical Research*, 2015; 10(3): 1-9. (IF: NA).

## **The relationship between risky work behaviors and self-reported knee pain among Malaysian railway workers.**

Sami A. R. AL-Dubai<sup>1</sup>, Ahmad M. Qureshi<sup>2</sup>, Kurubaran Ganasegeran<sup>3</sup>, Andrew Dane<sup>4</sup>, Kenneth E. Reckelhoff<sup>4</sup> and David W. Hannah<sup>4</sup>.

<sup>1</sup>Department of Community Medicine, International Medical University (IMU), Kuala Lumpur, Malaysia.

<sup>2</sup>Department of Public Health, Monash University (Malaysia) Clinical School, No 8- Jalan Masjid Abu Bakar, 80100 Johor Bahru, Johor, Malaysia.

<sup>3</sup>Department of Medical, Tengku Ampuan Rahimah Hospital (HTAR), Jalan Langat, 41200 Klang, Selangor, Malaysia.

<sup>4</sup>School of Health Sciences, Division of Chiropractic, International Medical University, Kuala Lumpur, Malaysia.

### **Abstract**

**Background:** Knee pain is one of the most common musculoskeletal pains at workplace and its prevalence ranges from 10 to 60%. Risky work behaviors are established risk factors. They result in functional impairment, disability and reduce quality of life.

**Objectives:** This study aims to determine the relationships between risky work behaviors and knee pain among Malaysian railway workers.

**Materials and Methods:** A cross-sectional study was carried out on 513 railway workers across eight states within Peninsular Malaysia. Socio-demographics, risky work behaviors, occupational safety and history of knee pain were obtained by direct interviews using a structured closed ended questionnaire. Descriptive, bivariate and multiple logistic regression analyses were performed.

**Results:** The prevalence of self-reported knee pain over the past one year was 31.6%. Multivariate analysis yielded six significant predictors of knee pain: Socio-demographics (tertiary education); risky work behaviors (lifting or carrying heavy objects, working in uncomfortable position of knee joint, repeated flexion and extension of knee joint, continuous sitting work); and occupational safety (applying Personal Protective Equipment - PPE during work).

**Conclusion:** The significant associations between knee pain and risky work behaviors in railway workers point to urgent need for preventive measures, particularly in high risk occupations.

**Keywords:** Knee pain; occupational; railway; work behaviors.

Saw PS, Pui, Nissen LM, Freeman C, Wong PS, Mak V. Health care consumers' perspectives on pharmacist integration into private general practitioner clinics in Malaysia: A qualitative study. *Journal of Patient Preference and Adherence*, 2015; 9: 467-477. (ISI IF: 1.676; SCI IF: 1.981; H-Index: 17; Tier: Q1).

## **Health care consumers' perspectives on pharmacist integration into private general practitioner clinics in Malaysia: A qualitative study.**

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<sup>3</sup>School of Pharmacy, International Medical University, Kuala Lumpur, Malaysia;

<sup>4</sup>School of Pharmacy, University of Queensland, St Lucia, QLD, Australia;

<sup>5</sup>School of Pharmacy, Monash University Malaysia, Selangor, Malaysia

### **Abstract**

**Background:** Pharmacists are considered medication experts but are underutilized and exist mainly at the periphery of the Malaysian primary health care team. Private general practitioners (GPs) in Malaysia are granted rights under the Poison Act 1952 to prescribe and dispense medications at their primary care clinics. As most consumers obtain their medications from their GPs, community pharmacists' involvement in ensuring safe use of medicines is limited. The integration of a pharmacist into private GP clinics has the potential to contribute to quality use of medicines. This study aims to explore health care consumers' views on the integration of pharmacists within private GP clinics in Malaysia.

**Methods:** A purposive sample of health care consumers in Selangor and Kuala Lumpur, Malaysia, were invited to participate in focus groups and semi-structured interviews. Sessions were audio recorded and transcribed verbatim and thematically analyzed using NVivo 10.

**Results:** A total of 24 health care consumers participated in two focus groups and six semi-structured interviews. Four major themes were identified: 1) pharmacists' role viewed mainly as supplying medications, 2) readiness to accept pharmacists in private GP clinics, 3) willingness to pay for pharmacy services, and 4) concerns about GPs' resistance to pharmacist integration. Consumers felt that a pharmacist integrated into a private GP clinic could offer potential benefits such as to provide trustworthy information on the use and potential side effects of medications and screening for medication misadventure. The potential increase in costs passed on to consumers and GPs' reluctance were perceived as barriers to integration.

**Conclusion:** This study provides insights into consumers' perspectives on the roles of pharmacists within private GP clinics in Malaysia. Consumers generally supported pharmacist integration into private primary health care clinics. However, for pharmacists to expand their capacity in providing integrated and collaborative primary care services to consumers, barriers to pharmacist integration need to be addressed.

**Keywords:** pharmacist integration, private clinic, general practitioners, health care consumer, Malaysia.

Saxena AK, Abdul-Majeed SS, Gurtu S, Mohamed WM. Investigation of redox status in chronic cerebral hypoperfusion-induced neurodegeneration in rats. *Applied and Translational Genomics*, 2015; 5: 30-32. (ISI IF: 0.235; SCI IF: 0.5; H-Index: 2; Tier: Q3).

## **Investigation of redox status in chronic cerebral hypoperfusion-induced neurodegeneration in rats.**

Anil Kumar Saxena<sup>1</sup>, Saif Saad Abdul-Majeed<sup>2</sup>, Sunil Gurtu<sup>3</sup>, Wael M.Y.Mohamed<sup>4</sup>.

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<sup>2</sup>Department of Life Sciences, International Medical University, Bukit Jalil, 5700 Kuala Lumpur, Malaysia

<sup>3</sup>Monash University, Sunway Campus, JC School of Medicine & Health Sciences, Bandar Sunway, Malaysia

<sup>4</sup>Clinical Pharmacology Department, Menoufia Medical School, Menoufia University, Egypt

### **Abstract**

Aging related reduction in cerebral blood flow (CBF) has been linked with neurodegenerative disorders including Alzheimer's disease and dementia. Experimentally, a condition of chronic cerebral hypoperfusion due to reduced CBF can be induced by permanent bilateral occlusion of common carotid arteries (2-vessel occlusion, 2VO) in rats. Since oxidative stress, leading to neuronal apoptosis and death, is one of the mechanisms, which is thought to play a significant role in chronic degenerative neurological disorders, the present study was planned to assess the ROS status by measuring the levels of anti-oxidant enzymes that might occur during chronic cerebral hypoperfusion. Antioxidant enzymes namely glutathione peroxidase (GPx), superoxide dismutase (SOD), and catalase were measured in the brain tissue at eight weeks of 2VO induction in rats. Results show significantly elevated levels of GPx, SOD, and catalase enzymes as compared with the control group. It is possible that compensatory rise in antioxidant enzymes occurs in response to increased oxidative stress following ischemic insult.

**Keywords:** Chronic cerebral hypoperfusion, Antioxidant enzymes, 2VO rats.

Sharma PA, Maheshwari R, Tekade M, Tekade RK. Nanomaterial based approaches for the diagnosis and therapy of cardiovascular diseases. *Current Pharmaceutical Design*, 2015; 21: 4465-78. (ISI IF: 3.452; SCI IF: 3.33; H-Index: 112; Tier: Q1).

## **Nanomaterial based approaches for the diagnosis and therapy of cardiovascular diseases.**

Sharma PA, Maheshwari R, Tekade M, Tekade RK<sup>1</sup>.

<sup>1</sup>School of Pharmacy, Department of Pharmaceutical Technology, International Medical University, Jalan Jalil Perkasa 19, 57000 Kuala Lumpur, Malaysia.

### **Abstract**

The increasing prevalence and complexity of cardiovascular diseases demand innovative strategies for diagnostic and therapeutic applications to improve patient care/prognoses. Additionally, various factors constrain present cardiovascular therapies, including low aqueous drug solubility, early metabolism, short half-life and drug delivery limitations. The efficient treatment of cardiovascular diseases requires improvement of traditional drug delivery systems. This can be accomplished by using novel nanomaterial that can incorporate diverse bioactives along with diagnostic agents in a single carrier, referred to as theranostics. This review discusses the state of the art in the applications to diagnosis and therapy of innovative, nanomaterial based strategies such as lipid based carriers, nanocapsules, magnetic nanoparticles, gold nanoparticles, protein conjugated nanoparticles, dendrimers and carbon based nanoformulations with a special emphasis on how they can contribute to improving the management of cardiovascular disease.

Shaufi MAM, Sieo CC, Chong CW, Gan HM, Ho YW. Deciphering chickens gut microbial dynamics based on high-throughput 16S rRNA metagenomics analyses. *BMC Gut Pathogens*, 2015; 7: 4. DOI: 10.1186/s13099-015-0051-7. (IF: 2.07; SCI IF: 2.302; H-Index: 9; Tier: Q2).

## Deciphering chickens gut microbial dynamics based on high-throughput 16S rRNA metagenomics analyses.

Mohd Asrro Mohd Shaufi<sup>1</sup>, Chin Chin Sieo<sup>1,2</sup>, Chun Wie Chong<sup>3</sup>, Han Ming Gan<sup>4</sup> and Yin Wan Ho<sup>1</sup>.

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<sup>4</sup>School of Science, Monash University Malaysia, Jalan Lagoon Selatan, 47500 Bandar Sunway, Selangor, Malaysia.

### Abstract

**Background:** Chicken gut microbiota has paramount roles in host performance, health and immunity. Understanding the topological difference in gut microbial community composition is crucial to provide knowledge on the functions of each members of microbiota to the physiological maintenance of the host. The gut microbiota profiling of the chicken was commonly performed previously using culture-dependent and early culture-independent methods which had limited coverage and accuracy. Advances in technology based on next-generation sequencing (NGS), offers unparalleled coverage and depth in determining microbial gut dynamics. Thus, the aim of this study was to investigate the ileal and caecal microbiota development as chicken aged, which is important for future effective gut modulation.

**Material and methods:** Ileal and caecal contents of broiler chicken were extracted from 7, 14, 21 and 42-day old chicken. Genomic DNA was then extracted and amplified based on V3 hyper-variable region of 16S rRNA. Bioinformatics, ecological and statistical analyses such as Principal Coordinate Analysis (PCoA) was performed in mother software and plotted using PRIMER 6. Additional analyses for predicted metagenomes were performed through PICRUSt and STAMP software package based on Greengenes databases.

**Results:** A distinctive difference in bacterial communities was observed between ilea and caeca as the chicken aged ( $P < 0.001$ ). The microbial communities in the caeca were more diverse in comparison to the ilea communities. The potentially pathogenic bacteria such as *Clostridium* were elevated as the chicken aged and the population of beneficial microbe such as *Lactobacillus* was low at all intervals. On the other hand, based on predicted metagenomes analysed, clear distinction in functions and roles of gut microbiota such as gene pathways related to nutrient absorption (e.g. sugar and amino acid metabolism), and bacterial proliferation and colonization (e.g. bacterial motility proteins, two-component system and bacterial secretion system) were observed between ilea and caeca, respectively ( $P < 0.05$ ).

**Conclusions:** The caeca microbial communities were more diverse in comparison to ilea. The main functional differences between the two sites were found to be related to nutrient absorption and bacterial colonization. Based on the composition of the microbial community, future gut modulation with beneficial bacteria such as probiotics may benefit the host.

**Keywords:** Broiler chicken, Gut microbiota, Gastrointestinal tract, 16S rRNA, Metagenomics, Next-generation sequencing.

Shetty SR, Babu S, Castelino R, Hegde S, Rao PK, Kishor S. Case-based, team-based learning: A novel method for teaching orofacial syndromology to dental undergraduate students. *Education for Health*, 2015; 28(1): 1-2. (SCI IF: 0.252; H-Index: 20; Tier: Q3).

## **Case-based, team-based learning: A novel method for teaching orofacial syndromology to dental undergraduate students.**

Shishir Ram Shetty<sup>1</sup>, Subhas Babu G.<sup>2</sup>, Renita Castelino<sup>2</sup>, Shruthi Hegde<sup>2</sup>, Prasanna Kumar Rao<sup>3</sup>, Sham Kishor<sup>4</sup>.

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<sup>2</sup>AB Shetty Memorial Institute of Dental Sciences, Nitte University, Mangalore,

<sup>3</sup>Yenepoya Dental College, Yenepoya University, Mangalore, Karnataka, India,

<sup>4</sup>Senior Lecturer, Faculty of Dentistry, International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

The knowledge of orofacial syndromes is important to a dental student because it can help the student detect abnormal features during routine examinations, which can lead to the prompt diagnosis of the syndrome. The most common and challenging problem faced by students is memorizing the different clinical features of the syndromes. Therefore, a study was conducted involving 100 undergraduate, final year bachelor of dental surgery students, where five groups of 20 students each were enrolled into the study.

Shyam S, Fatimah A, Rohana AG, Norasyikin AW, Nik Shanita S, Chinna K, Mohd. Yusof BN, Nor Azmi K. Effect of including glycaemic index (GI) nutrition education, within the Conventional Healthy Dietary Recommendation Framework, on body weight and composition of women with prior gestational diabetes mellitus: Results from a one-year randomised controlled trial. *Malaysian Journal of Nutrition*, 2015; 21(3): 1-14. [IMU Internal Grant - IMU 199/2009]. (SCI IF: 0.224; H-Index: 10; Tier: Q3).

**Effect of including glycaemic index (GI) nutrition education, within the Conventional Healthy Dietary Recommendation Framework, on body weight and composition of women with prior gestational diabetes mellitus: Results from a one-year randomised controlled trial.**

Shyam S<sup>1</sup>, Fatimah A<sup>1</sup>, Rohana AG<sup>2</sup>, Norasyikin AW<sup>3</sup>, Nik Shanita S<sup>4</sup>, Chinna K<sup>5</sup>, Mohd. Yusof BN<sup>6</sup>, and Nor Azmi K<sup>3</sup>.

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## Abstract

**Introduction:** Women with previous gestational diabetes mellitus (GDM) have increased risks for obesity and its metabolic consequences. Conventional diets have limited success in achieving weight loss in this population. Lowering dietary glycaemic index (GI) is known to facilitate weight loss in insulin-resistant women. This study evaluated the effects of including GI education within the conventional healthy dietary recommendation (CHDR) framework, on body weight and composition of women post-GDM.

**Methods:** Seventy-seven, non-diabetic, women with previous GDM (aged 20-40y, mean BMI:  $26.4 \pm 4.6 \text{ kg/m}^2$ ) were randomised into two groups: subjects who received CHDR only (CHDR, n=38) and those who received low-GI education in addition (LGI, n=39). The outcome of these interventions on body weight, waist circumference (WC), waist-to-hip-ratio (WHR), body fat and dietary intakes were assessed after one year. Clinically significant weight loss was defined as achieving a minimum of 5% weight loss from the baseline body weight.

**Results:** After one year, as compared to CHDR, a significantly greater proportion of LGI subjects had 7% (28.2% vs. 5.3%, p=0.01) and 10% (15.4% vs. 0%, p=0.025) weight loss from baseline. WC significantly reduced in both groups (p<0.004); however, only LGI subjects had significant WHR reduction ( $-0.02 \pm 0.04$ , p=0.035). One-year mean increases in total ( $1.2 \pm 2.4 \text{ kg}$ , p=0.008) and trunk fat ( $0.65 \pm 1.4 \text{ kg}$ , p=0.019) were significant only within the CHDR group, although the changes were not significantly different between the groups. After intervention, LGI as compared to CHDR diets, had lower GI ( $58 \pm 4$  vs.  $64 \pm 7$ , p<0.001) and higher dietary fibre ( $17 \pm 4$  vs.  $13 \pm 4 \text{ g}$ , p<0.001).

**Conclusions:** Including GI education within the CHDR framework for women with prior GDM, increases their likelihood of achieving  $\geq 7\%$  weight loss and significant WHR reductions in one year.

**Keywords:** Diet, gestational diabetes mellitus, glycemic index, glecemic load, prevention, type 2 diabetes.

Siar CH, Pua CK, Romanos G, Toh CG, Ng KH. The effect of implant-supported fixed prosthesis on the periodontal ligament width and structure in opposing natural teeth of macaca fascicularis. *Clinical Dentistry & Research*, 2015; 39(1): 4-11. (IF: NA).

## **The effect of implant-supported fixed prosthesis on the periodontal ligament width and structure in opposing natural teeth of macaca fascicularis.**

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### **Abstract**

**Background and aims:** Although rehabilitation of the partially dentate jaw with implant-supported fixed prosthesis has achieved high success rates, little is known regarding their effects on the opposing natural dentition. The periodontal ligament (PDL) functions as a dynamic attachment apparatus, and responds to occlusal forces by widening/narrowing and alterations in collagen fiber density/orientation. This study aimed to determine the effects of occlusal load from implant-borne bridgework on PDL of the opposing natural teeth.

**Materials and Methods:** Test samples consisted of four healthy adult male Macaca fascicularis with implant-supported 3-unit bridgework at the second premolar-second molar regions of their mandibles – one side for immediate-loading and the other side for delayed-loading, in a split mouth design. Another pair of monkeys with natural dentition served as normal controls. After 3 months of functional loading, the animals were sacrificed. Non-decalcified sections were prepared for histomorphometric assessment of PDL structure, cervical and apical widths.

**Results:** PDL collagen fiber density and orientation were similar in both groups and no signs of inflammation were present. The width of PDL of the teeth in the experiment group at the cervical and apical regions were significantly increased compared to control ( $p<0.05$ ).

**Conclusion:** PDL widening might reflect a functional response to occlusal forces from the 'rigidly ankylosed' implant-supported fixed prosthesis.

**Keywords:** Animal Studies, Functional Loading, Immediate Loading, Implant, Natural Dentition, Periodontal Ligament.

Sikarwar AS, Balakrishnan H, Tong SP, Koh VV, Yoong J, Koo JH, Chin NS, Kho XX, Lim JTKY. A review of potential metal toxicity and mineral deficiency in autism. *International Journal of Biochemistry Research and Review*, 2015; 7(1): 1-12. (IF: NA).

## A review of potential metal toxicity and mineral deficiency in autism.

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### Abstract

Autism is a neurodevelopmental disorder that predominantly affects the younger generation. The etiology which contributes to the occurrence of autism is not well defined. However, apart from genetic factors, environmental factors such as metal exposure have been controversial from the last decade. Contamination of several metals was proposed to be responsible for oxidative stress production, mitochondria dysfunction and immune abnormalities which lead to characteristics of autism in children. Objective of review is to analyze the relationship between the most studied toxic metals namely mercury, lead, cadmium and arsenic. Based on the findings, metal toxicity due to lead, mercury and aluminum are clearly exhibited meanwhile insufficient data were available on arsenic and cadmium. In addition, lack of essential minerals in autistic children who were exposed to heavy metals has also precipitated the autistic disorder. However, high quality epidemiological studies with minimal biasness should be conducted to support the correlation of heavy metal with autism.

**Keywords:** Autism; heavy metals; toxicity.

Sikarwar AS, Haw TJ, Prema MN, Chin YT, Phoon ME, Teng YN, Goh IWL, Goh HS. *Botulinum toxin: A friend or an enemy?* *British Microbiology Research Journal*, 2015; 6(2): 61. (IF: NA).

### ***Botulinum toxin: A friend or an enemy?***

Archana Singh Sikarwar<sup>1</sup>, Haw Tatt Jhong<sup>2</sup>, Prema Mono Nair<sup>2</sup>, Chin Yuee Teng<sup>2</sup>, Ch'ng Gim Khi<sup>2</sup>, Phoon Mei Ee<sup>2</sup>, Yeak Nai Teng<sup>2</sup>, Iris Goh Wen Li<sup>2</sup> and Goh Hui San<sup>2</sup>.

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#### **Abstract**

*Botulinum* toxin is utilized in many drugs for the treatment purposes in healthcare. Besides healthcare, it is also utilized in the cosmetic industry. Botulism toxin is a very good friend as far as we use it with precaution and follow all guidelines for controlled doses for medication. *Botulinum* toxin is also known as *Botulinum* neurotoxin, which has been classified as seven serotypes, structurally similar but different in their antigenic and serological properties. Toxins are specific proteases, which act by degrading the protein component essential for exocytosis. BoNT/A is widely applied in neurological treatment as remodelling of neuromuscular junctions. Despite causing neuromuscular disease that could prove fatal, BoNTs are of great interest and may unveil their true potential in medical applications. They could become very useful and valuable research tools, which may lead to novel applications from cosmetic interventions to development of potent anti-cancer drugs.

Sikarwar AS, Mohd Farid bin Dato' Seri Haji Abdul Rahman. Early diagnostics of beta thalassemia minor. *International Blood Research and Reviews*, 2015, 4(1): 1-8. (IF: NA).

## **Early diagnostics of beta thalassemia minor.**

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### **Abstract**

Early diagnosis of disease is highly recommended for the treatment purposes by the clinicians. Thalassemia is a genetic disorder which can be inherited from the parents. Thalassemia is classified into two groups alpha thalassemia and beta thalassemia depending upon the severity of the infants. The methods for early diagnosis of beta Thalassamia which is currently used in some diagnostic labs, for instances, current direct and indirect mutation detection method. Recently, most researchers have been discovered the latest or emerging methods to improve the technology in order to minimize invasive methods that may be used as a routine procedure for the future which is better than current methods, like pre-implantation genetic diagnosis and non-invasive prenatal diagnosis. For current methods, chorionic villi sampling (CVS) and amniocentesis are used whereas blastomere biopsy is used for pre-implantation genetic diagnosis. Hence, non-invasive prenatal diagnosis can be performed by using fetal cells which is found in maternal plasma such as trophoblasts, erythrocytes and leucocytes. Emerging methods for early diagnosis of beta thalassaemia minor are much safer than current methods that will minimize the risk and less invasive to the patients.

**Keywords:** Early diagnosis; thalassemia; chorionic villi sampling; amniocentesis.

Sikarwar AS, Nashid MN. Comparison of molecular methods of microbial serotyping. *British Microbiology Research Journal*, 2015; 7(1): 1-9. (IF: NA).

## **Comparison of molecular methods of microbial serotyping.**

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### **Abstract**

Molecular serotyping methods have advantages and disadvantages in terms of different parameters. Since different methods depend on different parameters there is a possibility that one serotype detected by one method maybe missed by another method. So it is very important to use combination of molecular methods for serotyping because it would allow accurate serotyping. The best molecular serotyping method is pyrosequencing. However, advanced molecular methods, especially the sequence-based methods are currently evolving and relatively expensive; it would take some time for it to be widely used. To increase the serotyping capacity of Polymerase Chain Reaction (PCR), more serotype-specific primers should be designed. To increase the reliability of DNA microarray, an internal probe hybridization control (IHC) can be used which would indicate any variability in the hybridization process. Moreover to further decrease the cost of DNA microarray, all fluorescent labelling can be replaced with biotin labelling. Sequencing of more isolates of the same serotype would definitely improve the sequence-based serotyping assays.

**Keywords:** Serotyping; microbes; diagnosis; molecular methods.

Sikarwar AS, Parolia A, Runai FAR, Barua A. Relationship between gingivitis and autism in children: A matched case-control study. *British Microbiology Research Journal*, 2015; 7(4): 174-179. [IMU BPharm Fund]. (IF: NA).

## **Relationship between gingivitis and autism in children: A matched case-control study.**

Archana Singh Sikarwar<sup>1</sup>, Abhishek Parolia<sup>2</sup>, Fransazellea Anak Robert Runai<sup>3</sup> and Ankur Barua<sup>4</sup>.

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### **Abstract**

Autism is a neurodevelopmental disorder diagnosed in early childhood. Studies have shown that autistic children have poorer gingival health and hence chances of higher incidence of gingivitis may occur in autistic than non-autistic children. Gingivitis is characterized by gingival inflammation without loss of attachment due to continuous exposure to dental plaque. Studies on the gingival health of autistic children in Malaysia are lacking. Hence, this study aims to evaluate and compare the gingival health status of autistic and non-autistic children.

**Materials and Methods:** A total of 86 children were recruited and an oral assessment was performed on each child to assess the degree of calculus, plaque accumulation and gingival inflammation using the calculus, plaque and gingival indices respectively. Pooled dental plaque (supragingival margins and gingival crevices of the buccal surface of the anterior maxillary molar and lingual of mandibular molar teeth) samples were collected and transferred to Stuart transport media. Samples were diluted and 100 µl aliquots were cultured on Columbia agar with 5% sheep blood. Plates were incubated in an anaerobic environment at 37°C for 7 days. Colonies were Gram stained and examined for cellular morphology followed by indole and catalase test. Bacterial identification was done using the Rapid ID 32 A kit. Kolmogorov-Smirnov, Chi-square, Mann-Whitney U, Odds ratio and Spearman's correlation analyses were used to analyze the data.

**Results:** The prevalence of dental calculus was significantly elevated in the autistic group with 43 sample size in each group ( $p = 0.001$ ). However, the prevalence of gingivitis and plaque were not significantly different between the two groups. The presence of plaque ( $p = 0.001$ ) and calculus ( $p = 0.004$ ) were significantly associated with the development of gingivitis.

**Conclusion:** While the autistic children had significantly more calculus, the occurrence of gingivitis and plaque were similar between autistic and control groups. Measures to control dental plaque and calculus among the autistic children should be improved to prevent gingivitis.

**Keywords:** Autism; gingivitis; children.

Sinniah D, Khoo EJ. E-cigarettes: Facts and legal status. *IeJSME*, 2015; 9(3): 10-19. (MyCite IF: 0.038).

## **E-cigarettes: Facts and legal status.**

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### **Abstract**

The sale of tobacco-based cigarettes has declined in western countries, and 'Big Tobacco' is trying to make up the deficit in profits from the developing world. The recent introduction of e-cigarette, in which they have invested both their hopes and their finances, has been a boon to them as it serves to confuse smokers and non-smokers about the real issues relating to the toxicity, dangers, and the promotion of nicotine addiction especially among youths who have not previously smoked cigarettes. E-cigarettes cause inflammation and damage to epithelial cells in human airways and increased risk of infection. E-cigarette vapour contains more carcinogens like formaldehyde and acetaldehyde compared to a regular cigarette. Long term vaping is associated with an incremental lifetime cancer risk. E-cigarettes are neither safe nor effective in helping smokers quit; there is enough evidence to caution children, adolescents, pregnant women, and women of reproductive age about e-cigarette's potential for long term consequences to foetal and adolescent brain development that sub-serve emotional and cognitive functions. The nicotine effects that cause modification of late CNS development constitute a hazard of adolescent nicotine use. The American Heart Association (AHA), Food and Drug Administration (FDA), World Health Organisation (WHO) and two-thirds of the major nations in the world discourage the promotion of e-cigarettes as an alternative to proven nicotine-addiction treatments. Doctors, health care workers, and medical students should be armed with the facts about e-cigarettes, its dangers, and the legal status concerning its use, in order to be able to offer proper counselling to patients and adolescents, in particular, with special reference to the Malaysian context.

**Keywords:** E-cigarettes, nicotine addiction, cancer risk, brain development consequence, legislation.

Sinniah D, Palayan K, Nalliah S. Corruption in medicine reported in India is only part of a larger picture. *BMJ*, 2015; (online). DOI: <http://www.bmjjournals.org/lookup/doi/10.1136/bmj.h826>. (ISI IF: 17.45; SCI IF: 5.368; H-Index: 316; Tier: Q1).

## **Corruption in medicine reported in India is only part of a larger picture.**

Davendralingam Sinniah, Kandasami Palayan, Sivalingam Nalliah.

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### **Abstract**

We read with interest the article by Meera Ray on unethical revenue targets that India's corporate hospitals set their doctors. What she reports is only a small part of a larger system of corruption that has pervaded the practice of medicine, not only in India, but many other parts of the world.

Medical education was once cheap and fees were subsidized by the state that in turn benefitted from the services provided to the community by the graduating doctors. Former British Prime Minister Margaret Thatcher changed all that. She monetized medicine raising fees to a maximum of £9,000 in England for local students. This reduced demand for degree places among younger people. International students had to pay exorbitant increases in tuition fees. Students from Asia represent 53% of foreign students enrolled worldwide. For host countries, enrolling international students could not only help raise revenues from higher education, but also became part of a broader strategy to recruit highly skilled immigrants. The whole scenario in medical education changed from altruism to one that was profit motivated. One of the most controversial changes implemented by the former British coalition government has been the decision to abolish entirely the Treasury contribution to students allocated to applied science and arts and humanities.

Driven by profit motive, private medical colleges sprouted unchecked in Asia, backed by financial institutions with political patronage. These "factories" increased their output by doubling student intake without commensurate increase in staff numbers. Lack of patients and hospital facilities led to introduction of virtual medicine in training and assessment of medical students and lowering of quality of graduates. Shadow housemanship does not appear to achieve its desired objectives, and many need to have their training extended.

Following investment of a huge amount of money and time in becoming a doctor, moneymaking becomes a powerful motivational tool. Private hospitals are run by business ventures, often under the patronage of politicians who have links to corporations and insurance companies that determine where patients can seek medical services and their treatment entitlement. The hospitals dictate the rules that govern the practice of doctors. Doctors derive a significant portion of their income from admission of patients, the tests they order, procedures they conduct, operations they perform, and the drugs they prescribe. There are no checks and balances as practice is individualized. Fee schedules set by professional bodies are overcome by itemizing; for example a case of appendicitis can be billed for multiple items one fee for laparoscopy, another for removal of appendix, another for suturing abdomen; another for wound care etc.; there are clever accountants to advise them along the way for a fee.

The medical profession in partnership with the community it serves should not stand helpless; cognizant of these developments it needs to take charge of the profession and reestablish the basics of ethics and professionalism in the practice of medicine.

Sinniah D. Rapid response. Asthma: Pathogenesis and novel drugs for treatment. *BMJ*, 2014; 349: g5517. doi: 10.1136/bmj.g5517. (ISI IF: 17.45; SCI IF: 5.368; H-Index: 316; Tier: Q1).

## **Rapid response. Asthma: Pathogenesis and novel drugs for treatment.**

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### **Abstract**

One of the main reasons why the prevalence of asthma seems to be rising, is one that appears to be largely ignored, namely the "March of the Allergens" highlighted in 2004 (*BMJ* 2004;329: 486). There has been and there still continues to be an increasing production and release of an unending variety of allergens and irritants into our environment, that is unregulated and unchecked. The danger to the health of asthmatics and others posed by this unfettered release of allergens and irritants needs to be carefully regulated to ensure that the products approved for release are as nonallergenic and nonirritative to the respiratory tract as possible. People in developing countries facing increasing exposure to these hitherto alien allergens and irritants and need to be aware of the new challenges and risks to health posed by these agents. Prevalence of asthma appears to be declining in the west due to changing lifestyle and environment, and increasing in developing countries who are adopting discarded western lifestyles.

Siti F, Tan BS, Mathew T. Dental esthetic impact of malocclusion and orthodontic treatment need based on self-perception among university students. *International Journal of Dental Science and Research*, 2015; DOI: <http://dx.doi.org/10.1016/j.ijdsr.2015.04.005>. (IF: NA).

## **Dental esthetic impact of malocclusion and orthodontic treatment need based on self-perception among university students.**

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<sup>3</sup>Lecturer in Orthodontics, School of Dentistry, International Medical University, Kuala Lumpur 57000, Malaysia

### **Abstract**

**Aims:** The objectives of this study were to assess the self-perceived esthetic orthodontic treatment need, to determine esthetic impact of malocclusion and investigate the effect of factors including gender and courses to the need of orthodontic treatment among university students.

**Methods:** A random study of 275 subjects among 18-25 year old university students from International Medical University (IMU) were evaluated using 2 scales; the Aesthetic Component of Index of Orthodontic Treatment Need (AC) and Oral Aesthetic Subjective Impact Scale (OASIS) and one direct question.

**Results:** The data were analyzed to evaluate the subjective orthodontic treatment need, aesthetic impact of malocclusion, and perceived orthodontic treatment need. In the study, 55.7% of the students experienced negative perception and 44.3% have positive self-perception. Female perceived more negative perception (AC-OASIS) as compared to male, 35.3% and 20.4% respectively. The Mann-Whitney U Test was used to compare the total AC-OASIS score between males and females showed positive significance,  $p < 0.05$ . The comparison between dentistry and non-dentistry students shows no significant difference in perception,  $p > 0.05$ .

**Conclusion:** There was no difference in the level of orthodontic treatment need among students from different courses, but impact of malocclusion was higher in females compared to males.

**Keywords:** Aesthetic, Orthodontic Treatment Need, Perception.

Sivanandy P. Review on current trends in the management of acute STEMI. *IOSR Journal of Pharmacy and Biological Sciences*, 2015; 10(5): 94-101. (ISI IF: 1.52).

## **Review on current trends in the management of acute STEMI.**

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### **Abstract**

The most severe form of Acute Coronary Syndrome is undoubtedly ST elevation myocardial infarction which requires immediate therapy. STEMI contributes approximately 25% to 40% of Myocardial Infarction presentation. After completion of fibrinolysis, antithrombus agent such as low molecular weight heparin for instance enoxaparin, unfractionated heparin, reviparin or fondaparinux is given immediately for 48 hours. Prasugrel and ticagrelor are introduced recently and are more favoured for STEMI since STEMI is a highly pre-thrombotic state where platelets are activated extensively. Early initiation of tirofiban together with clopidogrel, the clinical outcome in STEMI patients after primary Percutaneous Coronary Intervention had significantly improved. Tenecteplase is preferred over streptokinase due to its specific and fast onset which can achieve more rapid reperfusion of the occluded artery. A combined approach with antiplatelet and or anticoagulants with other lipid lowering agents and antihypertensive are warranted in the management of acute STEMI.

**Keywords:** Acute coronary syndrome; Myocardial infarction; Percutaneous coronary intervention; Antiplatelet; Fibrinolytic therapy.

Soo JSS, Ng CH, Tan SH, Rozita AM, Teh YC, Tan BS, Ho GF, See MH, Nur Aishah MT, Yip CH, Chung FFL, Hii LW, Teo SH, Leong CO. Metformin synergizes 5-fluorouracil, epirubicin, and cyclophosphamide (FEC) combination therapy through impairing intracellular ATP production and DNA repair in breast cancer stem cells. *Apoptosis*, 2015; DOI: 10.1007/s10495-015-1158-5. (SCI IF: 3.609; H-Index: 82; Tier: Q1).

## **Metformin synergizes 5-fluorouracil, epirubicin, and cyclophosphamide (FEC) combination therapy through impairing intracellular ATP production and DNA repair in breast cancer stem cells.**

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<sup>5</sup>Institute of Biological Chemistry, Academia Sinica, Taipei, Taiwan

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### **Abstract**

Metformin, an AMPK activator, has been reported to improve pathological response to chemotherapy in diabetic breast cancer patients. To date, its mechanism of action in cancer, especially in cancer stem cells (CSCs) have not been fully elucidated. In this study, we demonstrated that metformin, but not other AMPK activators (e.g. AICAR and A-769662), synergizes 5-fluorouracil, epirubicin, and cyclophosphamide (FEC) combination chemotherapy in non-stem breast cancer cells and breast cancer stem cells. We show that this occurs through an AMPK-dependent mechanism in parental breast cancer cell lines. In contrast, the synergistic effects of metformin and FEC occurred in an AMPK-independent mechanism in breast CSCs. Further analyses revealed that metformin accelerated glucose consumption and lactate production more severely in the breast CSCs but the production of intracellular ATP was severely hampered, leading to a severe energy crisis and impairs the ability of CSCs to repair FEC-induced DNA damage. Indeed, addition of extracellular ATP completely abrogated the synergistic effects of metformin on FEC sensitivity in breast CSCs. In conclusion, our results suggest that metformin synergizes FEC sensitivity through distinct mechanism in parental breast cancer cell lines and CSCs, thus providing further evidence for the clinical relevance of metformin for the treatment of cancers.

**Keywords:** Metformin, Breast cancer stem cell, Drug combination, AMPK.

Subramaniam S, Radhakrishnan A, Chakravarthi S, Palanisamy UD, Haleagrahara N. Antihyperglycemic effects of *Nephelium lappaceum* rind extract in high fat-induced diabetic rats. *International Journal of Pharmacology*, 2015; 11(6): 542-551. (ISI IF: 1.503; SCI IF: 0.878; H-Index: 20; Tier: Q3). [IMU R024-2007].

## **Antihyperglycemic effects of *Nephelium lappaceum* rind extract in high fat-induced diabetic rats.**

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<sup>2</sup>Department of Pathology, Faculty of Medicine, Perdana University Graduate School of Medicine, Selangor, Malaysia

<sup>3</sup>School of Medicine and Health Sciences, Monash University, Sunway Campus, 46150, Bandar Sunway, Malaysia

<sup>4</sup>Discipline of Biomedicine, College of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville, Australia

### **Abstract**

This study investigated the antidiabetic effects of the rind of *Nephelium lappaceum* extract in a high fat-induced diabetic rat model. Ethanolic *N. lappaceum* rind extract was prepared and standardised with geraniin using high performance liquid chromatography. Male Sprague Dawley rats were fed on a high fat diet followed by 210 mg kgG1 nicotinamide and 55 mg kgG1 streptozotocin injection to induce type 2 diabetes. The diabetic rats were treated with *N. lappaceum* rind at concentrations of 500 and 2000 mg for 28 days. Positive control rats were treated with 200 mg metformin. A 41.1% yield of ethanolic extract was obtained from powdered *N. lappaceum* rind while geraniin present in the extract was quantified to be  $33.0 \pm 0.2$  mg geraniin/g extract. Our study also showed that the diabetic rats treated with 2000 mg *N. lappaceum* had reduction in blood glucose level and improved insulin levels which were similar to the metformin-treated group. Pancreas histology showed that the group treated with 2000 mg of *N. lappaceum* had healthy pancreas morphology and the treatment was comparable to the effects observed in the metformin-treated group. In conclusion, *N. lappaceum* rind extract showed anti-hyperglycaemic activity at a dose of 2000 mg kgG1 without any major toxic effects in high-fat diet induced diabetic rats.

**Keywords:** *Nephelium lappaceum*, diabetes mellitus, insulin, pancreas, alpha amylase.

Subramaniam T, Loo RCN. Knowledge and practice of medical students of the usage of personal protective equipment: A comparison of two cohorts of students at the International Medical University. *IeJSME*, 2015; 9(2): 25-31. (MyCite IF: 0.038).

## **Knowledge and practice of medical students of the usage of personal protective equipment: A comparison of two cohorts of students at the International Medical University.**

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### **Abstract**

**Introduction:** Standard precautions in health care is the essence of medical practice encompassing the safety of patients and health care workers including medical students. Barriers to the proper use of personal protective equipment (PPE) exist across the world but identification of areas of weaknesses and appropriate remedies will reduce them. This study assesses knowledge and use of PPE among fourth year students after a period of educational interventions.

**Objective:** To evaluate appropriate use, awareness and knowledge about PPE among fourth year students after interventions.

**Method:** A cross-sectional study where forty year 4 students (Group B) were randomly observed and later asked to answer a questionnaire. Students had undergone interventions to improve PPE use, which included lectures and video sessions during each posting. Results were compared with a previous group (Group A). Chi-square test or Fisher's exact test was used to analyse the data.

**Results:** There was statistically significant improvement in the use of PPE like wearing and removing mask during invasive procedures ( $p < 0.001$ ) and hand-washing before and after a non-invasive task ( $p < 0.001$ ). Comparison of Groups A and B on the results of the questionnaire for 'Questions in which more than 10% students answered incorrectly', showed that there was improvement in Group B in all the questions, some being statistically significant with  $p$  value=0.01.

**Conclusion:** An overall improvement in the use of the PPE and knowledge was noted. Sometimes, students' attitude and personality may be a challenge and these students may defy changes, but this can be overcome if the strategies are embedded in the curriculum and taught from as early as the first semester.

**Keywords:** Personal protective equipment (PPE), standard practice, patient safety, attitudes, medical students.

Sumera A, Barua A, Navamoney A. Exploring the effect of backwash in first year medical students and comparison with their academic performances. *Procedia - Social and Behavioral Sciences*, 2015; 174: 491–495. [IMU internal grant: ICE 02/2013]. (SCI IF: 0.238; H-Index: 12).

## **Exploring the effect of backwash in first year medical students and comparison with their academic performances.**

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### **Abstract**

Assessment is an important aspect of learning and teaching which enables students to progress to either higher grades of studies or seek for employment, it also helps the teachers to assess the effectiveness of their teaching methodology. Several academicians have emphasized that assessment has strong impact on all aspects of learning. According to Buck, Backwash is influence of examination on learning.

We explored presence of backwash effect by questionnaire, rated on 6 point Likert scale with 10 items, in first year medical students and compared with their academic performances.

The first year medical students were surveyed by newly developed and validated backwash questionnaire (BAQ) in this study. The questionnaire was based on qualitative studies on backwash effect. All students were categorised into three groups based on their previous exam scores. High achievers were defined as having cGPA of > 3.5, medium achievers with cGPA ranges between 3.5 to 3.0 and low achievers of cGPA < 3.0. All three groups were evaluated for the presence of backwash.

The first year MBBS students (n=81) from a designated private medical university in Malaysia participated in this study. The male: female ratio was 1:1. High achievers were 39.5% (32/81), medium achievers 48.1% (39/81) and low achievers were 12.3% (10/81). Backwash was present in 46% (38/81), highest in medium achievers 50% (19/38), followed by high achievers 39% (15/38), low achievers 10.5% (4/38).

These results suggest that medium achievers are more prone to adopt learning strategies with the aim to pass assessments only. However, it is also interesting observation that high achievers also tend to have backwash. As far as low achievers are concerned, they have less backwash effect as observed in this study. The presence of negative effect of Backwash in high & medium achievers, suggests that assessment exert great impact on learning of medical students. To take the maximum benefits out of assessment, there is need to improve learning by adopting new strategies and improvements in teaching learning activities.

**Keywords:** Backwash; medical education; medical students; washback.

Sumera A, Radhakrishnan A, Baba AA, George E. Beta-thalassemia and molecular chaperones. *Blood Cells, Molecules and Diseases*, 2015; 54: 348–352. (IF: 2.33).

## **Beta-thalassemia and molecular chaperones.**

Afshan Sumera<sup>1</sup>, Ammu Radhakrishnan<sup>1</sup>, Abdul Aziz Baba<sup>1</sup>, Elizabeth George<sup>2</sup>.

<sup>1</sup>Department of Pathology, School of Medicine, International Medical University, Kuala Lumpur, Malaysia

<sup>2</sup>Department of Pathology, University Putra Malaysia, Kuala Lumpur, Malaysia

### **Abstract**

Thalassemia is known as a diverse single gene disorder, which is prevalent worldwide. The molecular chaperones are a set of proteins that help in two important processes while protein synthesis and degradation include folding or unfolding and assembly or disassembly, thereby helping in cell homeostasis. This review recaps current knowledge regarding the role of molecular chaperones in thalassemia, with a focus on beta thalassemia.

**Keywords:** Thalassemia, Molecular chaperones, AHSP, HSP-70.

Suresh K, Rajiah K, Veetttil SK, Ng SW. A cross-sectional study on knowledge and attitude toward Traditional Chinese Medicine (TCM) among adults in selected regions of Malaysia. *Journal of Complementary and Integrative Medicine*, 2015; DOI: 10.1515/jcim-2013-0068. (ISI IF: 0.655; SCI IF: 0.5; H-Index: 10; Tier: Q3).

## **A cross-sectional study on knowledge and attitude toward Traditional Chinese Medicine (TCM) among adults in selected regions of Malaysia.**

Suresh Kumar<sup>1</sup>, Kingston Rajiah<sup>1</sup>, Sajesh Kalkandi Veetttil<sup>1</sup>, Ng Sze Wei<sup>2</sup>.

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<sup>2</sup>Pharmacist, Outpatient Pharmacy, Hospital Raja Permaisuri Bainun Ipoh, Perak, Malaysia

### **Abstract**

**Background:** The objectives of this study were to determine the knowledge and attitude of adult Malaysians about Traditional Chinese Medicine (TCM), to understand the variation in the knowledge and attitude toward TCM among different demographic groups of adult Malaysian population and to determine the pattern of TCM use among adult Malaysians.

**Methods:** This study was a descriptive, cross-sectional survey using the convenience sampling method. A total of 400 adult Malaysians were recruited for this study. An interview administered questionnaire was used. Descriptive statistics Mann Whitney U Test and Kruskal-Wallis H test were used to analyze the data. The reliability of survey data in this study may affect since closed ended questions are used.

**Results:** The more commonly utilized therapy was herbal medicine (n=192, 82.1%), acupuncture (n=79, 33.8%) and oriental massage (n=58, 24.8%). The mean knowledge score and mean attitude score for the respondents were  $5.00 \pm 1.71$  and  $7.17 \pm 2.10$  respectively. There was a significant difference in the mean knowledge score between genders, among TCM users and non-TCM users, people of different education levels and ethnicity.

**Conclusions:** There were more TCM users than non-TCM users and the use of TCM was higher in females than males. The most popularly used TCM modalities were herbal medicines and acupuncture. Gender, education, ethnicity and use of TCM had a significant effect on adults' knowledge toward TCM.

**Keywords:** attitude; knowledge; Traditional Chinese Medicine.

Tan BS, Tiong KH, Choo HL, Chung FFL, Hii LW, Tan SH, Yap IKS, Pani S, Khor NTW, Wong SF, Rosli R, Cheong SK, Leong CO. Mutant p53-R273H mediates cancer cell survival and anoikis resistance through AKT-dependent suppression of BCL2-modifying factor (BMF). *Cell Death and Disease*, 2015; 6: e1826. doi:10.1038/cddis.2015.191. (ISI IF: 5.014; SCI IF: 4.599; H-Index: 38; Tier: Q1).

## **Mutant p53-R273H mediates cancer cell survival and anoikis resistance through AKT-dependent suppression of BCL2-modifying factor (BMF).**

BS Tan<sup>1,2</sup>, KH Tiong<sup>1,3,4</sup>, HL Choo<sup>1,2</sup>, F Fei-Lei Chung<sup>2</sup>, L-W Hii<sup>1,2</sup>, SH Tan<sup>1,2</sup>, IKS Yap<sup>5</sup>, S Pani<sup>6</sup>, NTW Khor<sup>7</sup>, SF Wong<sup>8</sup>, R Rosli<sup>9</sup>, S-K Cheong<sup>10</sup> and C-O Leong<sup>1,2,5</sup>.

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<sup>9</sup>UPMMAKNA Cancer Research Laboratory, Institute of Bioscience, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia and

<sup>10</sup>Faculty of Medicine and Health Sciences, University Tunku Abdul Rahman, Bandar Sungai Long, Selangor, Malaysia

### **Abstract**

p53 is the most frequently mutated tumor-suppressor gene in human cancers. Unlike other tumor-suppressor genes, p53 mutations mainly occur as missense mutations within the DNA-binding domain, leading to the expression of full-length mutant p53 protein. Mutant p53 proteins not only lose their tumor-suppressor function, but may also gain new oncogenic functions and promote tumorigenesis. Here, we showed that silencing of endogenous p53-R273H contact mutant, but not p53-R175H conformational mutant, reduced AKT phosphorylation, induced BCL2-modifying factor (BMF) expression, sensitized BIM dissociation from BCL-XL and induced mitochondria-dependent apoptosis in cancer cells. Importantly, cancer cells harbouring endogenous p53-R273H mutant were also found to be inherently resistant to anoikis and lack BMF induction following culture in suspension. Underlying these activities is the ability of p53-R273H mutant to suppress BMF expression that is dependent on constitutively active PI3K/AKT signaling. Collectively, these findings suggest that p53-R273H can specifically drive AKT signalling and suppress BMF expression, resulting in enhanced cell survivability and anoikis resistance. These findings open the possibility that blocking of PI3K/AKT will have therapeutic benefit in mutant p53-R273H expressing cancers.

Tee FY, Low CSL, Matizha P. Patient perceptions and experience of pain, anxiety and comfort during peripheral intravenous cannulation in medical wards: Topical anaesthesia, effective communication, and empowerment. *International Journal of Nursing Science*, 2015; 5(2): 41-46. DOI: 10.5923/j.nursing.20150502.01. (IF: NA).

## **Patient perceptions and experience of pain, anxiety and comfort during peripheral intravenous cannulation in medical wards: Topical anaesthesia, effective communication, and empowerment.**

Fwo Yi Tee, Christine Siew Lan Low, Patricia Matizha

Nursing Division, International Medical University (IMU), Kuala Lumpur, Malaysia

### **Abstract**

**Background:** Peripheral intravenous cannulation (PIVC) is one of the most common invasive procedures that healthcare personnel perform daily, often a source of patients' pain, anxiety, dissatisfaction and discomfort. Despite the importance of increasing patient's comfort in medical care, this need has been increasingly overlooked during PIVC, especially in the current busy clinical settings. Doctors and nurses play a significant role in providing effective, easy-to-implement pharmacological and non-pharmacological management to help patients cope with pain, distress, and anxiety in the frequently performed cannulation.

**Objective:** To assess adult patient perceptions and experience of comfort, pain and anxiety during PIVC in medical wards.

**Design and Setting:** A cross-sectional descriptive study was carried out on 120 adult patients admitted to medical wards.

**Methods:** Patients aged 18 to 65 who had undergone PIVC for 24 to 48 hours, with an 18 gauge Vasofix cannula and were alert and conscious during cannulation were included in the study. The study was guided by Kolcaba's Theory of Comfort. A structured face-to-face survey was used to collect data. Descriptive statistics were used to analyse the data.

**Results:** One hundred and fourteen patients (95%) experienced pain and 88 patients (73.3%) reported anxiety during PIVC. Forty-seven patients (53.2%) stated that they were afraid of needle pain, 26 patients (30.2%) were afraid of staffs' ability during PIVC, and 12 (13.5%) were afraid of blood or bleeding. Ninety-two patients (76.6%) indicated that their healthcare professional only pricked them once during cannulation. Only a small number of patients (11.7%) were offered topical anaesthesia and very few patients (15.8%) were given the option to choose their preferred site for cannulation. The majority of patients, 110 (91.7%), expressed the need for topical anaesthesia and 116 patients (96.7%) reported effective communication for pain relief. One hundred and eighteen patients (98.3%) said they thought they would have been more comfortable if they had been able to choose the site for cannulation.

**Conclusions:** The results may raise awareness of the need to reduce patients' pain and anxiety during PIVC. Using both pharmacological and non-pharmacological approaches, including topical anaesthesia, effective communication (friendly and informative staff) and empowerment to choose the site for cannulation; patients will be more relieved and subsequently reduce negative experiences that aids recovery.

**Keywords:** Anxiety, Cannulation, Comfort, Communication, Experience, Perception, Pain, Topical anaesthesia.

Tekade RK, Maheshwari RG, Sharma PA, Tekade M, Chauhan AS. siRNA therapy, challenges and underlying perspectives of dendrimer as delivery vector. *Current Pharmaceutical Design*, 2015; 21: 4614-36. (ISI IF: 3.452; SCI IF: 3.33; H-Index: 112; Tier: Q1).

## **siRNA therapy, challenges and underlying perspectives of dendrimer as delivery vector.**

Tekade RK, Maheshwari RG, Sharma PA, Tekade M, Chauhan AS.

School of Pharmacy, Department of Pharmaceutical Technology, International Medical University, Jalan Jalil Perkasa 19, 57000 Kuala Lumpur, Malaysia.

### **Abstract**

siRNA technology presents a helpful means of gene silencing in mammalian cells. Advancement in the field includes enhanced attentiveness in the characterization of target and off-target effects employing suitable controls and gene expression microarrays. These will permit expansion in the measurement of single and multiple target combinations and also permit comprehensive efforts to understand mammalian cell processes. Another fact is that the delivery of siRNA requires the creation of a nanoparticulate vector with controlled structural geometry and surface modalities inside the targeted cells. On the other hand, dendrimers represent the class of carrier system where massive control over size, shape and physicochemical properties makes this delivery vector exceptional and favorable in genetic transfection applications. The siRNA therapeutics may be incorporated inside the geometry of the density controlled dendrimers with the option of engineering the structure to the specific needs of the genetic material and its indication. The existing reports on the siRNA carrying and deliverance potential of dendrimers clearly suggest the significance of this novel class of polymeric architecture and certainly elevate the futuristic use of this highly branched vector as genetic material delivery system.

Tekade RK, Tekade M, Kumar M, Chauhan AS. Dendrimer-stabilized smart-nanoparticle (DSSN) platform for targeted delivery of hydrophobic antitumor therapeutics. *Pharmaceutical Research*, 2015; 32: 910-28. (ISI IF: 3.420; SCI IF: 3.573; H-Index: 152; Tier: Q1).

## **Dendrimer-stabilized smart-nanoparticle (DSSN) platform for targeted delivery of hydrophobic antitumor therapeutics.**

R. K. Tekade<sup>1</sup>, M. Tekade<sup>2</sup>, M. Kumar<sup>3</sup>, A. S. Chauhan<sup>4</sup>.

<sup>1</sup>Department of Pharmaceutical Technology, School of Pharmacy, The International Medical University Jalan Jalil Perkasa 19, Kuala Lumpur 57000, Malaysia

<sup>2</sup>TIT College of Pharmacy, Technocrats Institute of Technology Campus Anand Nagar Bhopal, MP 462021, India

<sup>3</sup>School of Medicine and Public Health, University of Wisconsin-Madison, Madison, Wisconsin 53705, USA

<sup>4</sup>School of Pharmacy, Concordia University Wisconsin Mequon, Wisconsin 53097, USA

### **Abstract**

**Purpose:** To formulate dendrimer-stabilized smart-nanoparticle (DSSN; pD-ANP-f) for the targeted delivery of the highly hydrophobic anticancer drug, Paclitaxel (PTXL).

**Method:** The developed nanoformulations were evaluated for particle size, surface-charge, loading efficiency, particle density, in-vitro drug release, SEM/TEM, cytotoxicity assay, fluorescence uptake, HPLC quantitative cell uptake assay, flow cytometry, tubulin polymerization, and stability assessments.

**Results:** The developed pD-ANP-f nanoformulation ( $135.17 \pm 7.39$  nm;  $-2.05 \pm 0.37$  mV and  $80.11 \pm 4.39\%$  entrapment) exhibited a pH-dependent drug release; remained stable in physiological pH, while rapid releasing PTLX under tumorous environment (pH 5.5). The cytotoxicity assay performed in cervical, breast, blood, and liver cancer cell lines showed pD-ANP-f to be strongly suppressing the growth of cancer cells. We investigated the fluorescence based intracellular trafficking and HPLC based cellular uptake of nanoformulated drug and the result indicates higher cellular uptake of pD-ANP-f compared to other formulations. pD-ANP-f prominently induced apoptosis ( $73.11 \pm 3.84\%$ ) and higher polymerization of tubulins ( $59.73 \pm 6.22\%$ ). DSSN nanoformulation was found to be extremely biocompatible (<1% hemolytic) compared to naked PTLX ( $19.22 \pm 1.01\%$ ) as well as PTLX-dendrimer nanocomplex ( $8.29 \pm 0.71\%$ ).

**Conclusion:** DSSN strategy is a novel and promising platform for biomedical applications that can be effectively engaged for the delivery of drug/gene/siRNA targeting.

**Keywords:** albumin, cancer cell uptake, caspase activity, dendrimer, fluorescence imaging.

Teo KS, Cheah CW, Mak JW. Association between house dust mite (HDM) sensitisation and asthma control using 3 skin prick test and HDM antigen specific IgE levels in saliva of Malaysian children. *IeJSME*, 2015; 9(2): 3-12. (MyCite IF: 0.038).

## **Association between house dust mite (HDM) sensitisation and asthma control using 3 skin prick test and HDM antigen specific IgE levels in saliva of Malaysian children.**

Keat Seong Teo, Cheong Wooi Cheah, Joon Wah Mak.

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### **Abstract**

**Background:** Sensitisation to house dust mite (HDM) has been regarded as a major risk factor for development of asthma. This study was carried out to investigate the profiles of HDM sensitisation among Malaysian children with asthma.

**Material and Methods:** The association between HDM sensitisation and control and severity of asthma was investigated. The salivary HDM specific IgE levels were quantified in different grades of control and severity of asthma in 125 unselected asthmatic children aged 5-12 years old attending the asthma follow-up clinic in Hospital Tuanku Ja'afar Seremban. An additional 29 non-asthmatic patients were selected as control. The skin prick test to assess sensitisation to *Dermatophagoides pteronyssinus* (DP) and *Dermatophagoides farinae* (DF) was performed on all the participants. A questionnaire regarding the control and severity of asthmatic symptoms of the subject was administered. Saliva was collected by voluntary spitting and ELISA was used to quantify the IgE specific to HDM antigen.

**Results:** There was a significant association between sensitisation to DP and DF and the control of asthma. The association between DP sensitisation and severity of asthma just failed to reach a significant level although there is a clear trend for this. Significant association was found between DF sensitisation and severity. The HDM specific IgE in the saliva was significantly higher in asthmatic patients compared to non-asthmatic patients. There was no significant difference between the specific IgE levels in patients with different severity status of asthma.

**Conclusion:** Salivary IgE levels may not be an appropriate indicator of the patients' asthmatic condition in this study. However, it can be concluded that there is significant association between the sensitisation of HDM and the control and severity of asthma.

**Keywords:** *Dermatophagoides pteronyssinus*, *Dermatophagoides farina*, childhood asthma, house dust mite, specific-salivary IgE.

Teo SY, Rathbone M, Coombes AGA, Lee SY, Gan SN. Development and validation of a stability-indicating isocratic reverse phase-liquid chromatography assay for determination of phenytoin in bulk and pharmaceutical formulations. *International Journal of Pharmacy and Pharmaceutical Sciences*, 2015; 7(8): 258-263. (SCI IF: 0.553; H-Index: 20; Tier: Q2).

## **Development and validation of a stability-indicating isocratic reverse phase-liquid chromatography assay for determination of phenytoin in bulk and pharmaceutical formulations.**

Siew Yong Teo<sup>1</sup>, Michael J. Rathbone<sup>1,2</sup>, Allan G. A. Coombes<sup>3</sup>, Siang Yin Lee<sup>4</sup>, Seng Neon Gan<sup>5</sup>.

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<sup>5</sup>Department of Chemistry, Faculty of Science, University of Malaya, Lembah Pantai, 50603 Kuala Lumpur, Malaysia

### **Abstract**

**Objective:** To develop and validate a stability-indicating reversed phase high performance liquid chromatography (RP-HPLC) assay for the determination of phenytoin in bulk and pharmaceutical dosage forms.

**Methods:** A HPLC instrument incorporating a Zorbax C-18 analytical column (250x4.6 mm, 5 $\mu$ m particles) with a mobile phase comprising acetonitrile: water in the ratio 50:50 (%v/v) was employed for the determination of phenytoin. The flow rate was set with an isocratic program, the temperature of the column was maintained at 25 °C and a detection wavelength of 200 nm was employed using an ultraviolet detector. The method was validated as per The International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH) guidelines.

**Results:** Total chromatographic analysis time per sample was 6 min with phenytoin eluting with the reaction time of 4.6±0.2 min. Phenytoin was exposed to acidic, basic, oxidative, photolytic and thermal stress conditions and the specificity of the assay was confirmed. The calibration plot was linear ( $R^2\geq 0.999$ ) over the phenytoin concentration range 5.0-100.0  $\mu$ g/ml. The percentage mean recoveries were found to be in the range of 98-102%. The relative standard deviation of precision and robustness were within prescribed limits (<2%). The limit of detection was 0.047  $\mu$ g/ml while the limit of quantitation was established as 0.143  $\mu$ g/ml.

**Conclusion:** A simple, accurate, precise and stability-indicating RP-HPLC assay was successfully developed for the determination of phenytoin in bulk and dosage forms. Hence, this assay is useful for the analysis of phenytoin in formulations in medicines development and pharmaceutical manufacturing setting.

**Keywords:** Phenytoin, RP-HPLC, Stability-indicating assay, Forced degradation, Validation.

Thakur S, Kesharwani P, Tekade RK, Jain NK. Impact of pegylation on biopharmaceutical properties of dendrimers. *Polymer*, 2015; 59: 67-92. (SCI IF: 3.627; H-Index: 183; Tier: Q1).

## **Impact of pegylation on biopharmaceutical properties of dendrimers.**

Shrikant Thakur<sup>1</sup>, Prashant Kesharwani<sup>1,2</sup>, Rakesh K. Tekade<sup>3</sup>, Narendra K. Jain<sup>1</sup>.

<sup>1</sup>Pharmaceutics Research Laboratory, Department of Pharmaceutical Sciences, Dr. Hari Singh Gour University, Sagar 470 003, India

<sup>2</sup>Department of Pharmaceutical Sciences, Eugene Applebaum College of Pharmacy and Health Sciences, Wayne State University, Detroit, MI 48201, USA

<sup>3</sup>School of Pharmacy, Department of Pharmaceutical Technology, International Medical University, Jalan Jalil Perkasa 19, 57000 Kuala Lumpur, Malaysia

### **Abstract**

In the recent years, conjugation of polyethylene glycol (PEG) on dendrimer has become an established and highly refined technology for delivery of bioactives. Dendrimers provide an ideal platform for delivery of bioactive as they represent well-defined, highly branched, nanoscale architecture with several modifiable surface groups. However, the actual potential of dendrimers is not realized due to toxicity limitations. PEG molecules are nontoxic, nonimmunogenic, and nonantigenic; highly water soluble, FDA approved and is endowed with tremendous potential to impart these properties to other biomolecules through the process of PEGylation. PEGylated dendrimer-mediated drug delivery overcomes the shortcomings of dendrimer reticuloendothelial system (RES) uptake, drug leakage, immunogenicity, hemolytic toxicity, cytotoxicity, hydrophobicity, facilitates the solubilization as well as raises the overall aptitude for DNA transfection, siRNA delivery, transepithelial transport and tumor targeting. This review focuses on various types of PEGylated dendrimer with a detailed note on various modes of PEG usage as well as their influence on various biopharmaceutical properties of dendrimer.

**Keywords:** PEGylation; Dendrimer; Drug delivery in vitro release.

Thalayasingam M, Noble V, Franzmann A, O'Sullivan M. Outcome of mixed nut biscuits challenges in low risk patients who are on tree nut exclusion diet. *Pediatric Allergy and Immunology*, 2015; doi: 10.1111/pai.12437. (ISI IF: 3.397; SCI IF: 3.565; H-Index: 65; Tier: Q1).

## **Outcome of mixed nut biscuits challenges in low risk patients who are on tree nut exclusion diet.**

Meera Thalayasingam<sup>1</sup>, Valerie Noble<sup>2</sup>, Annkathrin Franzmann<sup>2</sup> & Michael O'Sullivan<sup>2</sup>.

<sup>1</sup>Department of Paediatrics, International Medical University, Seremban, Malaysia;

<sup>2</sup>Immunology Department, Princess Margaret Hospital for Children, Perth, WA, Australia

### **Abstract**

Nut allergy has a significant impact on the psychosocial well-being and the quality of life of nut allergic children and their families. Currently, many children diagnosed with a peanut or tree nut allergies are advised to avoid all nuts. To maintain these dietary restrictions requires constant vigilance and use of coping mechanisms when eating at home, at restaurants and when travelling abroad. Furthermore, the concept of blanket nut avoidance in a selectively peanut allergic child has been challenged, and the benefit of early introduction of peanuts amongst children who were at high risk of developing clinical peanut allergy has been recently highlighted. The utility and applicability of positive serological tests to accurately diagnose clinical nut allergy has been examined. Ludman et al. recently highlighted the value of an elevated specific IgE (sIgE) level as a predictor of tree nut allergy in sensitized children. We sought to describe the outcome of mixed nut biscuit challenges in a cohort of patients who have predominantly negative or small positive skin prick tests (SPTs), and assess the significance of positive tree nut sIgE in these patients.

Thalayasingam M, Shek LPC. A diagnostic workup of perioperative anaphylaxis reveals a selective type 1 hypersensitivity to cefazolin. *IeJSME*, 2015; 9(2): 37-39. (MyCite IF: 0.038).

## **A diagnostic workup of perioperative anaphylaxis reveals a selective type 1 hypersensitivity to cefazolin.**

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<sup>1</sup>Department of Paediatrics, International Medical University, Clinical School Seremban, MALAYSIA

<sup>2</sup>Division of Allergy and Rheumatology, Department of Paediatrics, Khoo Teck Puat- National University Childrens' Medical Institute, National University Hospital, SINGAPORE

### **Abstract**

Anaphylaxis in the operating room although infrequent can be potentially fatal. The diagnosis of perioperative anaphylaxis is complex due to a multitude of factors. Firstly, patients under anesthesia cannot verbalize their complaints, the anesthetic agents themselves can alter vital parameters (e.g. heart rate and blood pressure) and cutaneous signs in a completely draped patient may be missed. Secondly, the differential diagnosis of intraoperative anaphylaxis is wide. Conditions such as asthma exacerbation, arrhythmia, hemorrhage, angioedema, mastocytosis, acute myocardial infarction, drug overdose, pericardial tamponade, pulmonary edema, pulmonary embolus, sepsis, tension pneumothorax, vasovagal reaction, venous air embolism, laryngospasm, blood transfusion reaction and malignant hyperthermia need to be considered. Thirdly, the diagnostic workup is challenging due to the multiple medications administered and other exposures encountered such as latex and chlorhexidine. However, through a timely allergy consultation and a systematic approach, identification of the culprit agent and safe alternatives can be established to prevent future occurrences as illustrated in the case below.

**Keywords:** Allergy, anaphylaxis, cefazolin, cephalosporin, perioperative anaphylaxis.

Toh SWH, Ng TKW, Tee VP, Lee VKM, Nesaretnam K. 1,3-dipalmitoyl-2-oleoylglycerol, 1,3 distearoyl-2-oleoylglycerol and trioleoylglycerol do not differ in their effects on postprandial levels of plasminogen activator inhibitor-1 (PAI-1) and markers of inflammation in healthy Malaysian adults. *Journal of Palm Oil Research*, 2015; Accepted for publication. (IF: 0.35).

**1,3-dipalmitoyl-2-oleoylglycerol, 1,3 distearoyl-2-oleoylglycerol and trioleoylglycerol do not differ in their effects on postprandial levels of plasminogen activator inhibitor-1 (PAI-1) and markers of inflammation in healthy Malaysian adults.**

S.T.W.Hong, Ng TKW, Tee VP, Lee VKM.

Division of Nutrition and Dietetics, International Medical University, Kuala Lumpur.

**Abstract**

The 1,3-dipalmitoyl-2-oleoylglycerol (POP), 1,3-distearoyl-2-oleoylglycerol (SOS) and trioleoylglycerol (OOO)-type of fats have different melting characteristics that may affect postprandial haemostatic and inflammatory marker concentrations. We tested the hypothesis that the predominance of either palmitic acid (16:0), stearic acid (18:0) or oleic acid (18:1) at the sn-1 and sn-3 positions of edible fats has different effects on postprandial haemostatic and inflammatory responses. Each of the 36 healthy adults (18 males, 18 females) received three different test muffins [each containing 53 g of test fat, i.e. palm mid-fraction (PMF; POP-rich), shea stearin (SS; SOS-rich) or high-oleic sunflower oil (HOSF; OOO-rich)] on different mornings in random order separated by two weeks. During a postprandial test, each subject was provided with a test muffin plus a low-fat milkshake (total 3.67 MJ or 876 kcal) in the morning and blood samples were collected at half-hourly intervals until 4.0 hr. Overall, no significant difference ( $p>0.017$ ) was observed between the three test meals for postprandial responses in plasma PAI-1, interleukin-6 (IL-6) and tumour necrosis factor- $\alpha$  (TNF- $\alpha$ ) levels. The POP-SOS and OOO- type of tests fats induced similar postprandial responses in haemostatic and inflammatory markers measured in the present subjects.

Vasiwala R, Ismail Burud, Lum SK, Rajveer Singh S. Embryonal rhabdomyosarcoma of the middle ear presenting with aural polyp and facial nerve palsy. *Medical Journal Malaysia*, 2015; 70(5): 300-301. (SCI IF: 0.6; H-Index: 21; Tier: Q3).

## **Embryonal rhabdomyosarcoma of the middle ear presenting with aural polyp and facial nerve palsy.**

Rafiqahmed Vasiwala<sup>1</sup>, Ismail Burud<sup>1</sup>, Siew Kheong Lum<sup>1</sup>, Rajveer Singh Saren<sup>2</sup>.

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<sup>2</sup>Hospital Tuanku Ja'afar, Seremban, Negeri Sembilan, Malaysia

### **Abstract**

Rhabdomyosarcoma is a rare tumour in the middle ear and mastoid cavity in children and the diagnosis is difficult. Repeated histological examination may be essential to confirm the diagnosis. We report a 6 year old boy with a left aural polyp, otorrhoea and facial nerve palsy who was initially thought to have otitis media and mastoiditis. He had polypectomy and the tissue taken for histopathology suggested an inflammatory condition. Subsequently he had mastoidectomy. Tissue taken during mastoidectomy was however reported as rhabdomyosarcoma. The child developed a cerebral abscess and eventually succumbed. A literature review of the disease, radiological findings, immunohistochemical features and treatment options is described.

**Keywords:** Rhabdomyosarcoma, mastoiditis, aural polyp, facial palsy.

Vasudeva Murthy CR, Muhammed Zarif Asraf Bin Zulkeffle, Venkateswaran SP, Barua A. Knowledge, awareness and participation of medical and non-medical students in the Malaysia National Thalassemia Prevention Programme. *International Journal of Human Genetics*, 2015; 15(2): 61-72. (SCI IF: 0.155; H-Index: 5; Tier: Q4).

## **Knowledge, awareness and participation of medical and non-medical students in the Malaysia National Thalassemia Prevention Programme.**

Vasudeva Murthy C.R.<sup>1</sup>, Muhammad Zarif Asraf Bin Zulkefle<sup>2</sup>, Sunil Pazhayanur Venkateswaran<sup>3</sup> and Ankur Barua<sup>4</sup>.

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<sup>4</sup>Department of Community Medicine, International Medical University, Kuala Lumpur, Malaysia

<sup>2</sup>Biomedical Science Graduate, Management and Science University, Shah Alam, Malaysia

### **Abstract**

There are about 1 in 20 Malaysians who are carriers of the thalassemia gene and the prevalence of this disease in Malaysia is 6-10 percent. This study was conducted to assess knowledge, awareness and participation of medical and non-medical students in the Malaysia National Thalassemia Prevention Programme. The design of the study was a cross-sectional study. A total of 300 questionnaires were distributed to selected students from the university. The collected data was analysed using SPSS version 20.0. Data analysis revealed a highly significant difference in total knowledge between medical students and non-medical students and the thalassemia awareness also showed significant statistical association between medical and non-medical students. In conclusion, medical students have better knowledge, awareness and screening rate of thalassemia.

**Keywords:** Screening, Attitudes, Thalassemia, Multi-racial Population.

Veeraveedu PT. What is SM Journal of Nutrition and Metabolism (SMJNM)? *SM Journal of Nutrition and Metabolism*, 2015; 1(2): 1008. (IF: NA).

## **What is SM Journal of Nutrition and Metabolism (SMJNM)?**

Punniyakoti T Veeraveedu

Department of Pharmaceutical Chemistry, International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

SM Journal of Nutrition and Metabolism (SMJNM) is an International Peer Reviewed Open Access journal presenting original research contributions and scientific advances in the field of Nutrition and Metabolism. SMJNM will publish articles that integrate nutrition with biochemistry and molecular & cellular biology. The open access process is chosen to provide rapid and accessible dissemination of new results and perspectives in a field that is of great current interest. Manuscripts in all areas of nutritional biochemistry will be considered. The need for the journal is identified in the epidemic of obesity, diabetes, metabolic syndrome (dyslipidemias) and related diseases, and a sudden increase in popular diets, as well as renewed interest in intermediary metabolism.

Verma RK, Shambaditya G, Singh AP, Tripathi P, Ojha G, Rai M. A review on hypoglycemic, hypolipidemic and anti-obesity effect of *Allium sativum*. *Journal of Chemical and Pharmaceutical Sciences*, 2015; 7(4): 321-329. (SCI IF: 0.09; Tier: Q4; H-Index: 20).

## **A review on hypoglycemic, hypolipidemic and anti-obesity effect of *Allium sativum*.**

Verma Rohit Kumar<sup>1</sup>, Goswami Shambaditya<sup>2</sup>, Singh Ajay Pratap<sup>2</sup>, Tripathi Poonam<sup>2</sup>, Ojha Garima<sup>2</sup>, Rai Mayank<sup>2</sup>.

<sup>1</sup>Department of Pharmacy Practice, School of Pharmacy, International Medical University (IMU), Kuala Lumpur, Malaysia

<sup>2</sup>Department of Pharmacy, ITM, GIDA, Gorakhpur, UP, India

### **Abstract**

Garlic (*Allium sativum*) is among the oldest of all cultivated plants. It has been used as a medicinal agent for thousands of years. Obesity which is a risk factor for the development of metabolic disorders, dyslipidemia, atherosclerosis and Type 2 diabetes, hypertension, hyperlipidiemia, hypercholesterolemia, insulin resistance and glucose tolerance, is now a day's most common problem affecting the social and economic status of the people. The present review has been broadly discussed based upon both clinical and preclinical studies by demonstrating the significant hypoglycemic, hypolipidemic and anti-obese effects of garlic when given in the form of various dosage forms (either in ethanolic extract, aqueous extract, raw garlic juice, garlic oil, garlic homogenate or with medicine i.e. Metformin, Glibenclamide, etc). The work has been reported and tabulated the significant results along with uttering of combination study (with turmeric and propranolol) and important role of herb drug interaction.

**Keywords:** *Allium sativum*, hypoglycemic, hypolipidemic, anti-obese effects, herb drug interaction.

Voon K, Tan YF, Leong PP, Teng CL, Gunnasekaran R, Ujang K, Chua KB, Wang LF. *Pteropine Orthoreovirus* infection among out-patients with acute upper respiratory tract infection in Malaysia. *Journal of Medical Virology*, 2015; DOI: 10.1002/jmv.24304. (ISI IF: 2.347; SCI IF: 2.321; H-Index: 93; Tier: Q2).

## ***Pteropine Orthoreovirus infection among out-patients with acute upper respiratory tract infection in Malaysia.***

Kenny Voon<sup>1</sup>, Yeh Fong Tan<sup>1</sup>, Pooi Pooi Leong<sup>2</sup>, Cheong Lieng Teng<sup>1</sup>, Rajasekaran Gunnasekaran<sup>3</sup>, Kamsiah Ujang<sup>3</sup>, Kaw Bing Chua<sup>4</sup> and Lin-Fa Wang<sup>5</sup>.

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<sup>2</sup>University Tunku Abdul Rahman, Sungai Long, Selangor, Malaysia

<sup>3</sup>Health Clinic Rembau, Negeri Sembilan, Malaysia

<sup>4</sup>Temasek Lifesciences Laboratory, Singapore

<sup>5</sup>Programme in Emerging Infectious Diseases, Duke-NUS Graduate Medical School, Singapore

### **Abstract**

This study aims to assess the incidence rate of *Pteropine orthoreovirus* (PRV) infection in patients with acute upper respiratory tract infection (URTI) in a suburban setting in Malaysia, where bats are known to be present in the neighborhood. Using molecular detection of PRVs directly from oropharyngeal swabs, our study demonstrates PRV is among one of the common causative agents of acute URTI with cough and sorethroat as the commonest presenting clinical features. Phylogenetic analysis on partial major outer and inner capsid proteins shows that these PRV strains are closely related to Melaka and Kampar viruses previously isolated in Malaysia. Further study is required to determine the public health significance of PRV infection in Southeast Asia, especially in cases where coinfection with other pathogens may potentially lead to different clinical outcomes.

**Keywords:** *Pteropine orthoreovirus*; *Melaka virus*; *Nelson Bay virus*; *Kampar virus*; *Pulau virus*.

Voon PT, Ng TKW, Lee VKM, Nesaretnam K. Virgin olive oil, palm olein and coconut oil diets do not raise cell adhesion molecules and thrombogenicity indices in healthy Malaysian adults. *European Journal of Clinical Nutrition*, 2015; advance online publication. doi: 10.1038/ejcn.2015.26 [Research grant from Malaysian Palm Oil Board]. (SCI IF: 3.205; H-Index: 106; Tier: Q1).

## **Virgin olive oil, palm olein and coconut oil diets do not raise cell adhesion molecules and thrombogenicity indices in healthy Malaysian adults.**

PT Voon<sup>1,2</sup>, TKW Ng<sup>2</sup>, VKM Lee<sup>2</sup> and K Nesaretnam<sup>1</sup>.

<sup>1</sup>Malaysian Palm Oil Board (MPOB), Persiaran Institusi, Bandar Baru Bangi, Kajang, Malaysia and

<sup>2</sup>Department of Nutrition and Dietetics, International Medical University (IMU), No.126, Jalan Jalil Perkasa 19, Bukit Jalil, Kuala Lumpur, Malaysia.

### **Abstract**

**Background/Objectives:** Effects of high-protein diets that are rich in saturated fats on cell adhesion molecules, thrombogenicity and other nonlipid markers of atherosclerosis in humans have not been firmly established. We aim to investigate the effects of high-protein Malaysian diets prepared separately with virgin olive oil (OO), palm olein (PO) and coconut oil (CO) on cell adhesion molecules, lipid inflammatory mediators and thrombogenicity indices in healthy adults.

**Methods:** A randomized cross-over intervention with three dietary sequences, using virgin OO, PO and CO as test fats, was carried out for 5 weeks on each group consisting of 45 men and women. These test fats were incorporated separately at two-thirds of 30% fat calories into high-protein Malaysian diets.

**Results:** For fasting and nonfasting blood samples, no significant differences were observed on the effects of the three test-fat diets on thromboxane B2 (TXB2), TXB2/PGF1 $\alpha$  ratios and soluble intracellular and vascular cell adhesion molecules. The OO diet induced significantly lower ( $P<0.05$ ) plasma leukotriene B4 (LTB4) compared with the other two test diets, whereas PGF1 $\alpha$  concentrations were significantly higher ( $P<0.05$ ) at the end of the PO diet compared with the OO diet.

**Conclusions:** Diets rich in saturated fatty acids from either PO or CO and high in monounsaturated oleic acid from virgin OO do not alter the thrombogenicity indices—cellular adhesion molecules, thromboxane B2 (TXB2) and TXB2/prostacyclin (PGF1 $\alpha$ ) ratios. However, the OO diet lowered plasma proinflammatory LTB4, whereas the PO diet raised the antiaggregatory plasma PGF1 $\alpha$  in healthy Malaysian adults. This trial was registered at clinicaltrials.gov as NCT 00941837.

Wageeh AY, Noorsaadah AR, Azhar A, Sharifah Bee AH, Abeer AA, Farkaad AK, Marzieh Y. Understanding the chemistry behind the antioxidant activities of butylated hydroxytoluene (BHT): A review. *European Journal of Medicinal Chemistry*, 2015; 101: 295-312. (ISI IF: 3.447; SCI IF: 3.618; H-Index: 95; Tier: Q1).

## **Understanding the chemistry behind the antioxidant activities of butylated hydroxytoluene (BHT): A review.**

Wageeh A. Yehye<sup>1</sup>, Noorsaadah Abdul Rahman<sup>2</sup>, Azhar Ariffin<sup>2</sup>, Sharifah Bee Abd Hamid<sup>1</sup>, Abeer A. Alhadi<sup>2</sup>, Farkaad A. Kadir<sup>3</sup>, Marzieh Yaeghoobi<sup>4</sup>.

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<sup>2</sup>Department of Chemistry, Faculty of Science, University of Malaya, 50603 Kuala Lumpur, Malaysia

<sup>3</sup>Division of Human Biology, Faculty of Medicine, International Medical University, 57000 Kuala Lumpur, Malaysia

<sup>4</sup>Drug Design and Development Research Group, Department of Chemistry, Faculty of Science, University of Malaya, 50603 Kuala Lumpur, Malaysia

### **Abstract**

Hindered phenols find a wide variety of applications across many different industry sectors. Butylated hydroxytoluene (BHT) is a most commonly used antioxidant recognized as safe for use in foods containing fats, pharmaceuticals, petroleum products, rubber and oil industries. In the past two decades, there has been growing interest in finding novel antioxidants to meet the requirements of these industries. To accelerate the antioxidant discovery process, researchers have designed and synthesized a series of BHT derivatives targeting to improve its antioxidant properties to be having a wide range of antioxidant activities markedly enhanced radical scavenging ability and other physical properties. Accordingly, some structure-activity relationships and rational design strategies for antioxidants based on BHT structure have been suggested and applied in practice. We have identified 14 very sensitive parameters, which may play a major role on the antioxidant performance of BHT. In this review, we attempt to summarize the current knowledge on this topic, which is of significance in selecting and designing novel antioxidants using a well-known antioxidant BHT as a building-block molecule. Our strategy involved investigation on understanding the chemistry behind the antioxidant activities of BHT, whether through hydrogen or electron transfer mechanism to enable promising anti-oxidant candidates to be synthesized.

**Keywords:** Antioxidant, Butylated hydroxytoluene, Free radical, Reactive oxygen species, Phenol.

Wai N, Khaled MA, Sikarwar AS. Is having had a cup of coffee a methodological issue in routine sphygmomanometry? *British Journal of Medicine and Medical Research (Science Domain)*, 2015; 6(10): 965-977. DOI: 10.9734/BJMMR/2015/15037. [IMU Internal Grant - BPharm 4.8/JCM21/2009]. (IF: NA).

## **Is having had a cup of coffee a methodological issue in routine sphygmomanometry?**

Nyunt Wai<sup>1</sup>, Mohd Ariff Bin Khaled<sup>2</sup> and Archana Singh Sikarwar<sup>1</sup>.

<sup>1</sup>Department of Human Biology, School of Medical Sciences, International Medical University (IMU), 126, Jalan Jalil Perkasa 19 Bukit Jalil, 57000 Kuala Lumpur, Malaysia.

<sup>2</sup>Sem.7 B. Pharm. Student, School of Pharmacy, International Medical University (IMU), Bukit Jalil, 57000 Kuala Lumpur, Malaysia.

### **Abstract**

**Background:** In view of the impact of hypertension on public health, the objective of this study was to determine whether having had a cup of coffee in an everyday life setting raises blood pressure significant enough to make it a methodological issue in routine sphygmomanometry.

**Methods:** Healthy normotensive volunteers from a private university in Malaysia were recruited. After an overnight fast, seated systolic and diastolic blood pressures (SBP and DBP) of habitual coffee drinkers ( $n=16$ ) were measured (Omron HEM 7080 automated monitor) in the laboratory 15 min. before and every 15 min. up to 90 min. after drinking strong coffee. This was repeated on non-habitual drinkers ( $n=16$ ) who also underwent a control study (decaffeinated coffee). To see whether the laboratory findings could be extrapolated to everyday life setting, the pre-coffee BP and 30 min.- and 60 min.- post-coffee BPs were measured on habitual coffee drinkers ( $n=18$ ) who consumed self-prepared coffee and who carried on with routine office work between BP measurements taken in a nearby room.

**Results:** In the laboratory setting, coffee significantly increased SBP and DBP at all time-points in non-habitual drinkers (e.g.  $11.38 \pm 8.2$  and  $10.75 \pm 5.7$  mm Hg at 75 min;  $P < 0.01$ , repeated measures ANOVA and Dunnett's test); in habitual drinkers, SBP only was increased ( $7.23 \pm 4.7$  at 90 min;  $P < 0.05$ ). In the office setting, smaller but significant DBP elevations ( $3.72 \pm 5.1$  at 60 min;  $P < 0.05$ ) were observed.

**Conclusion:** The results indicate that having had a cup of coffee could be a methodological issue in routine sphygmomanometry, particularly with non-habitual coffee drinkers consuming strong coffee. However, caution should be exercised in drawing conclusions because of the small sample size.

**Keywords:** Caffeinated coffee; decaffeinated coffee; blood pressure; methodological issue; sphygmomanometry; habitual coffee drinker; non-habitual coffee drinker; office setting.

Wang CYD, Chu WL, Kok YY. Assessment of paracetamol (acetaminophen) toxicity in microalgae. *Polish Journal of Environmental Studies*, 2015; 24(2): 735-741. [IMU Internal Grant – BMS 101-2010-07]. (SCI IF: 0.636, H-index: 27; Tier: Q3).

## **Assessment of paracetamol (acetaminophen) toxicity in microalgae.**

Daniel Ching-Yee Wang, Wan-Loy Chu, Yih-Yih Kok

International Medical University, No. 126, Jalan Jalil Perkasa 19, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

### **Abstract**

There has been concern over the ecotoxicity of residual pharmaceuticals detected in the aquatic environments. Paracetamol (acetaminophen) is one the most extensively used over-the-counter drugs and its residues have been detected in the aquatic environment. There have been contradictory reports on the sensitivity of microalgae to paracetamol (PCM). The primary aim of this study was to assess the toxicity of PCM in five microalgae, namely *Pseudokirchneriella subcapitata*, *Scenedesmus dimorphus*, *Stichococcus bacillaris*, *Chlorella vulgaris*, and *Chlamydomonas reinhardtii* based on 96 h test at concentrations ranging from 0, 30, 60, 120, to 240 mg L<sup>-1</sup>. Results showed that the microalgae were very resistant to PCM as the EC50 values based on OD620 were beyond the highest concentration (>240 mg L<sup>-1</sup>) tested. However, *P. subcapitata* was more sensitive than the other species when compared using EC10 (91.4 mg L<sup>-1</sup>) based on chlorophyll a (chl a) concentration. Both chl a and total carotenoid concentrations of *Pseudokirchneriella subcapitata* and *Scenedesmus dimorphus* exposed to the highest PCM concentration (240 mg L<sup>-1</sup>) were significantly ( $p < 0.05$ ) lower than the control. In comparison, the car: chl a ratio of *Chlorella vulgaris* increased with increasing PCM concentrations.

**Keywords:** microalgae, paracetamol (acetaminophen), toxicity, *Chlamydomonas reinhardtii*, *Chlorella vulgaris*, *Pseudokirchneriella subcapitata*.

Wickramatilake CM, Mohideen MR, Pathirana C. Association of metabolic syndrome with testosterone and inflammation in men. *Annales d'Endocrinologie*, 2015; DOI: <http://dx.doi.org/10.1016/j.ando.2015.04.008>. (ISI IF: 0.871; SCI IF: 0.895; H-Index: 26; Tier: Q3).

## **Association of metabolic syndrome with testosterone and inflammation in men.**

Chandima Madhu Wickramatilake<sup>1</sup>, Mohamed R. Mohideen<sup>2</sup>, Chitra Pathirana<sup>1</sup>.

<sup>1</sup>Department of Biochemistry, Faculty of Medicine, University of Ruhuna, P.O. Box: 70, Galle, Sri Lanka

<sup>2</sup>International Medical University, IMU Clinical School, 6 Jalan Indah, Taman Sri Kenangan 83000, Batu Pahat, Johor, Malaysia

### **Abstract**

**Objective:** There is limited data on the assessment of relationship between sex hormones, metabolic syndrome (MS) and inflammation. Therefore, our objective was to examine the relationship between metabolic syndrome, testosterone and inflammation.

**Patients and methods:** It was a cross-sectional study which included 309 subjects in the age range of 30–70 years. Blood was analyzed for plasma glucose, serum lipids, total testosterone (TT) and high-sensitivity C-reactive protein (hs-CRP).

**Results:** There were 153 patients with metabolic syndrome and 156 without MS according to modified NCEP guidelines. Age, BMI, obesity, dyslipidaemia, smoking (OR = 2.35, CI = 1.35–4.09), LDL-Ch, low TT (OR = 0.76, CI = 0.38–1.52) and elevated hs-CRP (OR = 1.56, CI = 0.87–2.80) were significant independent predictors of MS (all P < 0.05).

**Conclusions:** The low testosterone and high hs-CRP levels are independent predictors of metabolic syndrome.

**Keywords:** Metabolic syndrome; Testosterone; Inflammation; Men.

Wickramatilake CM, Mohideen MR, Pathirana C. Association of serum testosterone with the complications of acute myocardial infarction. *Pakistan Heart Journal*, 2015; 48(01): 28-35. (IF: NA).

## **Association of serum testosterone with the complications of acute myocardial infarction.**

Chandima Madhu Wickramatilake<sup>1</sup>, Mohamed Rifyd Mohideen<sup>2</sup>, Chitra Pathirana<sup>3</sup>.

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<sup>2</sup>International Medical University (IMU) Clinical School, 6 Jalan Indah, Taman Sri Kenangan 83000, Batu Pahat Johor, Malaysia

<sup>3</sup>Department of Biochemistry, Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka.

### **Abstract**

**Objective:** The objectives of the study were to assess (1) if serum levels of testosterone differ between men with and those without ST-elevation myocardial infarction, and (2) to determine the association of testosterone with the outcome of ST-elevation myocardial infarction (STEMI).

**Methodology:** This was hospital based case control study, conducted at Coronary Care Unit of Teaching Hospital, Karapitiya, Galle, Sri Lanka from January 2010 to December 2011. Two hundred and six males (103 patients with STEMI and 103 controls without a history of CAD) were studied. Serum total testosterone, lipids and plasma glucose were estimated.

**Results:** The basal serum total testosterone in patients was significantly lower compared to controls ( $11.47 \pm 3.3$  vs.  $18.15 \pm 7.2$  nmol/L,  $P = 0.001$ ). The results showed that total testosterone ( $P = 0.001$ ; OR = 0.75; 95 % CI = 0.66 - 0.85) was a significant independent predictor of STEMI and it was a significant independent predictors of in-hospital complications ( $P = 0.003$ , OR = 1.68, 95% CI = 1.2 - 2.36).

**Conclusion:** Men with STEMI have significantly lower basal serum total testosterone compared to controls. Low testosterone is a risk factor of STEMI. Testosterone was independently related to the development of in-hospital complications of STEMI.

**Keywords:** Myocardial Infarction, Complications, Testosterone.

Win NN, Jorgensen AMS, Chen YS, Haneline MT. Effects of upper and lower cervical spinal manipulative therapy on blood pressure and heart rate variability in volunteers and patients with neck pain: A randomized controlled, cross-over, preliminary study. *Journal of Chiropractic Medicine*, 2015; 14: 1–9. [IMU Internal Grant - IMU 224/2010]. (SCI IF: 0.407; H-Index: 10; Tier: Q3).

## **Effects of upper and lower cervical spinal manipulative therapy on blood pressure and heart rate variability in volunteers and patients with neck pain: A randomized controlled, cross-over, preliminary study.**

Ni Ni Win<sup>1</sup>, Anna Maria S. Jorgensen<sup>1</sup>, Yu Sui Chen<sup>2</sup>, and Michael T. Haneline<sup>3</sup>.

<sup>1</sup>Senior Lecturer, International Medical University, Chiropractic, School of Health Sciences, Kuala Lumpur, Malaysia

<sup>2</sup>Associate Professor, International Medical University, Human Biology, School of Medicine, Kuala Lumpur, Malaysia

<sup>3</sup>Professor, International Medical University, Chiropractic, School of Health Sciences, Kuala Lumpur, Malaysia

### **Abstract**

**Objective:** The aims of this study were to examine autonomic nervous system responses by using heart rate variability analysis (HRV), hemodynamic parameters and numeric pain scale (NPS) when either upper (C1 and C2) or lower (C6 and C7) cervical segments were manipulated in volunteers, and whether such response would be altered in acute mechanical neck pain patients after spinal manipulative therapy (SMT).

**Methods:** A randomized controlled, cross-over, preliminary study was conducted on 10 asymptomatic normotensive volunteers and 10 normotensive patients complaining of acute neck pain. HRV, blood pressure (BP) and heart rate (HR), and NPS were recorded after upper cervical and lower cervical segments SMT in volunteer and patient groups.

**Results:** The standard deviation of average normal to normal R-R intervals (SDNN) increased ( $83.54 \pm 22$  vs.  $105.41 \pm 20$ ;  $P = .02$ ) after upper cervical SMT. The normalized unit of high frequency (nuHF), which shows parasympathetic activity, was predominant ( $40.18 \pm 9$  vs.  $46.08 \pm 14$ ) after upper cervical SMT ( $P = .03$ ) with a significant decrease ( $109 \pm 10$  vs.  $98 \pm 5$ ) in systolic BP ( $P = .002$ ). Low frequency to high frequency (LF/HF) ratio, which shows predominance of sympathetic activity increased ( $1.05 \pm 0.7$  vs.  $1.51 \pm 0.5$ ;  $P = .02$ ) after lower cervical SMT in the healthy volunteers group. However, there was an increase in SDNN ( $70.48 \pm 18$  vs.  $90.23 \pm 20$ ;  $P = .02$  and  $75.19 \pm 16$  vs  $97.52 \pm 22$ ;  $P = .01$ ), a decrease in LF/HF ratio ( $1.33 \pm 0.3$  vs.  $0.81 \pm 0.2$ ;  $P = .001$  and  $1.22 \pm 0.4$  vs.  $0.86 \pm 0.3$ ;  $P = .02$ ), which was associated with decreased systolic BP ( $105 \pm 10$  vs.  $95 \pm 9$ ;  $P = .01$  and  $102 \pm 9$  vs.  $91 \pm 10$ ;  $P = .02$ ) and NPS scores ( $3 \pm 1$  vs.  $0$ ;  $P = .01$  and  $3 \pm 1$  vs.  $1 \pm 1$ ;  $P = .03$ ) following both upper and lower cervical SMT in the patient's group. The baseline HR was  $67 \pm 9$  vs  $64 \pm 5$  (upper cervical) and  $65 \pm 7$  vs  $69 \pm 11$  (lower cervical) in both the healthy volunteer' and patient' groups.

**Conclusion:** Upper cervical SMT enhances dominance of parasympathetic and lower cervical SMT enhances dominance of sympathetic activity in this young volunteer group. However, dominance of parasympathetic activity was found in patients with neck pain that received both upper and lower cervical SMT.

**Keywords:** Blood pressure; Manipulation; Spinal; Heart rate.

Win NN, Nadarajah VDV, Daw KW. Implementation of the restaurant-type problem-based learning in a chiropractic program in Malaysia. *Journal of Educational Evaluation for Health Professions*, 2015; 12: 17. (published online). Doi: <http://dx.doi.org/10.3352/jeehp.2015.12.17>. (IF: NA).

## **Implementation of the restaurant-type problem-based learning in a chiropractic program in Malaysia.**

Ni Ni Win, Vishna Devi V Nadarajah, Daw Khin Win

International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

**Purpose:** Problem-based learning (PBL) is usually conducted as a small group learning session with about 8 students per one facilitator. We propose an alternative restaurant-type PBL implementation for an undergraduate chiropractic program and determined its effectiveness for student learning.

**Methods:** It was conducted at the International Medical University, Kuala Lumpur, Malaysia involving the chiropractic student cohort of 2012. Six PBL cases were provided to chiropractic students, which consisted of three PBL cases with learning resources and another three PBL without learning resources. Group discussions were not continuously supervised since only one facilitator was present. The students' perception on restaurant-type PBL was assessed by using questionnaires which consisted of three domains: motivation, cognitive skill and pressure to work.

**Results:** Thirty of the 31 (97%) students participated in the study. Restaurant-type PBL enhanced student's motivation, cognitive skill and pressure to work significantly ( $P < 0.05$ ). The students felt that PBL with learning resources increased motivation and cognitive skills ( $P < 0.001$ ).

**Conclusion:** Above new PBL implementation does not require additional tutors or any additional funding. Its classroom setting has benefits for students' learning similar to its equivalent in small-group sessions. Above finding also suggests that students rely significantly on the available learning resources.

**Keywords:** Chiropractic; Learning; Motivation; Perception; Problem-based learning.

Wong CY, Teoh ML, Phang SM, Lim PE, Beardall J. Interactive effects of temperature and UV radiation on photosynthesis of *Chlorella* strains from polar, temperate and tropical environments: Differential impacts on damage and repair. *PLoS ONE*, 2015; 10(10): e0139469. DOI: 10.1371/journal.pone.0139469. (SCI IF: 3.197; H-Index: 153; Tier: Q1).

## **Interactive effects of temperature and UV radiation on photosynthesis of *Chlorella* strains from polar, temperate and tropical environments: Differential impacts on damage and repair.**

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### **Abstract**

Global warming and ozone depletion, and the resulting increase of ultraviolet radiation (UVR), have far-reaching impacts on biota, especially affecting the algae that form the basis of the food webs in aquatic ecosystems. The aim of the present study was to investigate the interactive effects of temperature and UVR by comparing the photosynthetic responses of similar taxa of *Chlorella* from Antarctic (*Chlorella* UMACC 237), temperate (*Chlorella vulgaris* UMACC 248) and tropical (*Chlorella vulgaris* UMACC 001) environments. The cultures were exposed to three different treatments: photosynthetically active radiation (PAR; 400–700 nm), PAR plus ultraviolet-A (320–400 nm) radiation (PAR + UV-A) and PAR plus UV-A and ultraviolet-B (280–320 nm) radiation (PAR + UV-A + UV-B) for one hour in incubators set at different temperatures. The Antarctic *Chlorella* was exposed to 4, 14 and 20°C. The temperate *Chlorella* was exposed to 11, 18 and 25°C while the tropical *Chlorella* was exposed to 24, 28 and 30°C. A pulse-amplitude modulated (PAM) fluorometer was used to assess the photosynthetic response of microalgae. Parameters such as the photoadaptive index (E<sub>k</sub>) and light harvesting efficiency ( $\alpha$ ) were determined from rapid light curves. The damage (k) and repair (r) rates were calculated from the decrease in  $\Phi_{PSI}^{eff}$  over time during exposure response curves where cells were exposed to the various combinations of PAR and UVR, and fitting the data to the Kok model. The results showed that UV-A caused much lower inhibition than UV-B in photosynthesis in all *Chlorella* isolates. The three isolates of *Chlorella* from different regions showed different trends in their photosynthesis responses under the combined effects of UVR (PAR + UV-A + UV-B) and temperature. In accordance with the noted strain-specific characteristics, we can conclude that the repair (r) mechanisms at higher temperatures were not sufficient to overcome damage caused by UVR in the Antarctic *Chlorella* strain, suggesting negative effects of global climate change on microalgae inhabiting (circum-) polar regions. For temperate and tropical strains of *Chlorella*, damage from UVR was independent of temperature but the repair constant increased with increasing temperature, implying an improved ability of these strains to recover from UVR stress under global warming.

Yang WY, Burrows T, MacDonald-Wicks L, Williams LT, Collins CE, Chee WSS. Studying the family diet: An investigation into association between diet, lifestyle and weight status in Malaysian families. *Malaysian Journal of Nutrition*, 2015; 21(2): 1-14. [IMU Internal Grant - IMU 275/2013, PhD research]. (SCI IF: 0.224; H-Index: 10; Tier: Q3).

## **Studying the family diet: An investigation into association between diet, lifestyle and weight status in Malaysian families.**

Yang WY<sup>1,2</sup>, Burrows T<sup>1</sup>, MacDonald-Wicks L<sup>1</sup>, Williams LT<sup>1,3</sup>, Collins CE<sup>1</sup> & Chee WSS<sup>2</sup>.

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<sup>3</sup>Menzies Health Institute of Queensland, Griffith University, Gold Coast Campus, Australia

### **Abstract**

**Introduction:** The contribution of the family environment to childhood obesity in Malaysia is not well known. This paper describes the study, methodology and results of a pilot study to assess the feasibility of conducting a study on diet and lifestyle factors among Malay primary school children and their main caregiver(s) in regard to body weight status.

**Methods:** The Family Diet Study used a cross-sectional design and targeted a minimum of 200 Malay families at five national primary schools in the Klang Valley, Malaysia using a multi-stage sampling method. Participants were Malay families with children aged 8 to 12 years and their main caregiver(s). Data on socio-demographic, dietary intake, parental child feeding practices, physical activity and anthropometric measures were collected predominantly at schools with follow-up 24-h dietary recalls collected by phone. Details of recruitment, inclusion criteria, assessments and statistical analyses are also discussed.

**Results:** Eleven families provided data by answering questionnaires, recalling diet intake and participating in anthropometric measures. The results showed overall feasibility of the study protocol but required some modifications prior to implementation of the main study. Mothers were the main parent involved in family food procurement, preparation and mealtime supervision. Snacking was not commonly reported and fruit and vegetables intakes were generally infrequent.

**Conclusion:** The most novel component of this study was the comprehensive collection of data from both children and their main caregiver(s) within the context of the family. Detailed information on dietary and lifestyle aspects will help to elucidate factors associated with obesity aetiology in Malay children.

**Keywords:** Body weight status, child, diet, family, lifestyle.

Yap FL, Sikarwar AS, Yee YY. Anti-tumor effect of *Calloselasma rhodostoma* venom on human breast cancer cell line. *British Biotechnology Journal*, 2015, 8(2): 1-9. (IF: NA).

## **Anti-tumor effect of *Calloselasma rhodostoma* venom on human breast cancer cell line.**

Yap Fei Ling<sup>1</sup>, Archana Singh Sikarwar<sup>2</sup> and Yee Yoon Yi<sup>3</sup>.

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<sup>2</sup>Department of Human Biology, School of Medicine, IMU, KL, Malaysia.

<sup>3</sup>Undergraduate Student of Biomedical Science, IMU, KL, Malaysia.

### **Abstract**

**Aim:** Breast cancer is a major health issue for women worldwide. The potential anti-tumor effect of snake venom, has been studied and evidences showed reducing tumor size and inhibition of angiogenesis. Present study aims to study the antitumor effect of *Calloselasma rhodostoma* venom on MDA-MB-231 cells.

**Methods:** The morphological changes of venom-treated MDA-MB-231 and MCF-10A cells in various incubation time were studied. Cytotoxicity of the venom on both cell lines were determined using Cytotoxicity 96® Non-radioactive cytotoxicity assay.

**Results:** Based on the morphology study and cytotoxicity assay study, MDA-MB-231 cells were killed at venom concentration of 10 µg/ml, started at 12 h post treatment and significant killing dose at venom concentration of 20 µg/ml. Cell morphology study of MCF-10A showed that the cells were also killed at venom concentration of 10 µg/ml, started at 12 h post. However, viable MCF-10A cells were observed 48 h post treatment.

**Conclusion:** *C. rhodostoma* venom can kill both non-tumorigenic breast cells MCF-10A and tumorigenic breast cancer cells MDA-MB-231. However, the venom kills MDA-MB-231 cells at lower concentration than MCF-10A cells. More studies are needed to study antitumor effect of the venom.

**Keywords:** Cytotoxicity; *C. rhodostoma*; MDA-MB-231; MCF-10A; snake venom.

Yap IKS, Kho MT, Lim ESH, Nor Hadiani Ismail, Yam WK, Chong CW. Acclimatisation-induced stress influenced host metabolic and gut microbial composition change. *Molecular BioSystem*, 2015; 11: 297-306. (ISI IF: 3.21; SCI IF: 3.136; H-Index: 55; Tier: Q1).

## **Acclimatisation-induced stress influenced host metabolic and gut microbial composition change.**

Ivan K. S. Yap<sup>1</sup>, Mee Teck Kho<sup>2</sup>, Swee Hua Erin Lim<sup>3</sup>, Nor Hadiani Ismail<sup>4</sup>, Wai Keat Yam<sup>1</sup> and Chun Wie Chong<sup>1</sup>.

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### **Abstract**

Understanding the basal gut bacterial community structure and the host metabolic composition is pivotal for the interpretation of laboratory treatments designed to answer questions pertinent to host–microbe interactions. In this study, we report for the first time the underlying gut microbiota and systemic metabolic composition in BALB/c mice during the acclimatisation period. Our results showed that stress levels were reduced in the first three days of the study when the animals were subjected to repetitive handling daily but the stress levels were increased when handling was carried out at lower frequencies (weekly). We also observed a strong influence of stress on the host metabolism and commensal compositional variability. In addition, temporal biological compartmental variations in the responses were observed. Based on these results, we suggest that consistency in the frequency and duration of laboratory handling is crucial in murine models to minimise the impact of stress levels on the commensal and host metabolism dynamics. Furthermore, caution is advised in consideration of the temporal delay effect when integrating metagenomics and metabonomics data across different biological matrices (i.e. faeces and urine).

Yee MSL, Khiew PS, Tan YF, Chiu WS, Kok YY, Leong CO. Low temperature, rapid solution growth of antifouling silver-zeolite nanocomposite clusters. *Microporous and Mesoporous Materials*, 2015; 218: 69-78. (ISI IF: 3.453; SCI IF: 3.517; H-Index: 110; Tier: Q1).

## **Low temperature, rapid solution growth of antifouling silver-zeolite nanocomposite clusters.**

Maxine Swee-Li Yee<sup>1</sup>, Poi Sim Khiew<sup>1</sup>, Yuen Fen Tan<sup>2</sup>, Wee Siong Chiu<sup>3</sup>, Yih-Yih Kok<sup>4</sup>, Chee-Onn Leong<sup>2</sup>.

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### **Abstract**

Biofouling is a common and pervasive problem which reduces the efficiency of manmade marine structures. Silverzeolite (AgZ) nanocomposite material is proposed as a promising antimicrofouling agent. Metallic silver nanoparticles were immobilized on silver ion doped ZSM5 zeolites using a green reducing agent, trisodium citrate. The stable and porous inner structure of ZSM5 zeolites performs a dual role as a stable sizecontrol template and a reservoir of antimicrobial nanosilver. SEM revealed the globular and clusterlike morphology of the AgZ composites, with a homogenous distribution of silver particles on the surface of the AgZ clusters, while TEM analysis indicated Ag nanoparticles could be detected both on the surface and within the zeolite. UV-visible analysis on AgZ displayed the characteristic surface plasmon resonance absorption maximum for Ag nanoparticles ranging from 408 to 500 nm. Indeed, BET analysis also showed a reduction in surface area of up to 44% with the incorporation of Ag nanoparticles into the zeolite, indicating the formation and growth of Ag within ZSM5 zeolite. XRD analysis indicated the presence of metallic Ag while the ZSM5 crystalline framework remained largely intact after the Ag crystal growth process. The AgZ nanocomposites were evaluated for their biofilm inhibition activity against *Halomonas pacifica*, a common marine bacterium implicated in the early stages of biofouling. AgZ loaded with up to 10 wt% Ag reduced biofilm attachment by 81%, and inhibited the growth of marine microalgae *Dunaliella tertiolecta* and *Isochrysis* sp. Overall, results demonstrated the effective antimicrofouling property of AgZ nanocomposites.

**Keywords:** Ag; Antifouling; Green synthesis; Nanocomposite; ZSM5 zeolite.

Yew SQ, Ravindran HK, Meka VS, Dharmalingam SR. Preparing kaempferol nanosuspension (KNS) using high pressure homogenization (HPH) technique. *BMC Proceedings*, 2015; 9(Suppl 7): A22. (SCI IF: 0.769; H-Index: 8; Tier: Q2).

## **Preparing kaempferol nanosuspension (KNS) using high pressure homogenization (HPH) technique.**

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<sup>2</sup>University Putra, Selangor, Malaysia.

### **Abstract**

**Background:** During the last decades, researchers have provided a plethora of therapeutic uses of kaempferol, including anticancer, anti-inflammatory, neuroprotective, anti-oxidative and anti-oestrogenic activities, making kaempferol a valuable compound. However, being a poor water-soluble compound, kaempferol often has insufficient solubility and bioavailability. To find a solution for this limitation, this research project mainly focuses on formulating a kaempferol nanosuspension (KNS) using High Pressure Homogenisation (HPH), followed by performing physiological characterization. Kaempferol nanosuspensions are supposed to have a better bioavailability in animal models or even human subjects in future experiments, thereby reducing oral drug dosage required by consumers.

**Methods:** A weighed quantity of pure kaempferol (1%w/v) was dispersed in ultrapure water. The mixture had undergone magnetic stirring at 3000rpm for 30 mins. Then the mixture was sonicated using an ultrasonic probe sonicator. The amplitude was set at 100% for 1 minute. Finally, the mixture was homogenised by a high pressure homogeniser at 500 Bar, 1100 Bar and 1700 Bar for 10, 20 and 20 cycles respectively. The particle size, chemical and physical characteristics of kaempferol nanosuspension being produced was compared with that of pure kampferol. The characterization techniques include Differential Scanning Calorimetry, X-ray Diffraction, Transmission Electron Microscopy and Fourier Transform Infrared Spectroscopy. Data was expressed as mean  $\pm$  S.E.M. Significance levels for comparison.

**Results:** The KNS produced by HPH undergone a significant reduction in particle size (from 2 $\mu$ m to 400nm), but at the same time, maintaining its original chemical and physical characteristics, suggesting that this nanosized kaempferol has similar therapeutic effects as the pure drug.

**Conclusions:** Nanosuspensions produced by HPH represent an optimal solution for many poorly soluble substances and, therefore, they are still considered as a formulation of first choice due to the simplicity of the system.

Yusof K, Ku-Zaifah N, Ayob A, Othman F, Mohd Rizal N, Ahmad YA. Palm tocotrienol-rich fraction inhibits methionine-induced cystathione  $\beta$ -synthase in rat liver. *Journal of Physiology and Biochemistry*, 2015; DOI: 10.1007/s13105-015-0431-y. (ISI IF: 1.969; SCI IF: 2.019; H-Index: 32; Tier: Q3).

## Palm tocotrienol-rich fraction inhibits methionine-induced cystathione $\beta$ -synthase in rat liver.

Yusof Kamisah<sup>1</sup>, Ku-Zaifah Norsidah<sup>1,2</sup>, Ayob Azizi<sup>3</sup>, Othman Faizah<sup>4</sup>, Mohd Rizal Nonan<sup>5</sup>, Ahmad Yusof Asmadi<sup>6</sup>.

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### Abstract

Oxidative stress plays an important role in cardiovascular diseases. The study investigated the effects of dietary palm tocotrienol-rich fraction on homocysteine metabolism in rats fed a high-methionine diet. Forty-two male Wistar rats were randomly assigned to six groups. Five groups were fed with high-methionine diet (1 %) for 10 weeks. Groups 2 to 5 were also given dietary folate (8 mg/kg) and three doses of palm tocotrienol-rich fraction (30, 60 and 150 mg/kg) from week 6 to week 10. The last group was only given basal rat chow. High-methionine diet increased plasma homocysteine after 10 weeks, which was prevented by the supplementations of folate and high-dose palm tocotrienol-rich fraction. Hepatic S-adenosyl methionine (SAM) content was unaffected in all groups but S-adenosyl homocysteine (SAH) content was reduced in the folate group. Folate supplementation increased the SAM/SAH ratio, while in the palm tocotrienol-rich fraction groups, the ratio was lower compared with the folate. Augmented activity of hepatic cystathione  $\beta$ -synthase and lipid peroxidation content by highmethionine diet was inhibited by palm tocotrienolrich fraction supplementations (moderate and high doses), but not by folate. The supplemented groups had lower hepatic lipid peroxidation than the high-methionine diet. In conclusion, palm tocotrienol-rich fraction reduced high-methionine-induced hyperhomocysteinaemia possibly by reducing hepatic oxidative stress in high-methionine-fed rats. It may also exert a direct inhibitory effect on hepatic cystathione  $\beta$ -synthase.

**Keywords:** Tocotrienol, Methionine, Homocysteine, S-Adenosyl methionine, S-Adenosyl homocysteine, Cystathione  $\beta$ -synthase.

Zalilah MS, Khor GL, Sariman S, Huang SL, Chin YS, Barakatun Nisak MY, Chan YM, Maznorila M. The relationship between household income and dietary intakes of 1-10 year old urban Malaysian. *Nutrition Research and Practice*, 2015; 9(3): 278-287. (ISI IF: 1.129; SCI IF: 1.429; H-Index: 9; Tier: Q2).

## The relationship between household income and dietary intakes of 1-10 year old urban Malaysian.

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### Abstract

**Background/Objectives:** Diet plays an important role in growth and development of children. However, dietary intakes of children living in either rural or urban areas can be influenced by household income. This cross-sectional study examined energy, nutrient and food group intakes of 749 urban children (1-10 years old) by household income status.

**Subjects/Methods:** Children's dietary intakes were obtained using food recall and record for two days. Diet adequacy was assessed based on recommended intakes of energy and nutrients and food group servings.

**Results:** For toddlers, all nutrients except dietary fiber (5.5 g) exceeded recommended intakes. Among older children (pre-schoolers and school children), calcium (548 mg, 435 mg) and dietary fiber (7.4 g, 9.4 g) did not meet recommendations while percentage of energy from total fat and saturated fats exceeded 30% and 10%, respectively. The mean sodium intakes of pre-schoolers (1,684 mg) and school children (2,000 mg) were relatively high. Toddlers in all income groups had similar energy and nutrient intakes and percentages meeting the recommended intakes. However, low income older children had lowest intakes of energy ( $P < 0.05$ ) and most nutrients ( $P < 0.05$ ) and highest proportions that did not meet recommended energy and nutrient intakes. For all food groups, except milk and dairy products, all age groups had mean intakes below the recommended servings. Compared to middle and high income groups, low income preschoolers had the lowest mean intake of fruits (0.07 serving), meat/poultry (0.78 serving) and milk/dairy products (1.14 serving) while low income toddlers and school children had the least mean intake of fruits (0.09 serving) and milk/dairy products (0.54 serving), respectively.

**Conclusions:** Low socioeconomic status, as indicated by low household income, could limit access to adequate diets, particularly for older children. Parents and caregivers may need dietary guidance to ensure adequate quantity and quality of home food supply and foster healthy eating habits in children.

**Keywords:** Children, dietary intake, energy and nutrients, food groups, household income.