



RESEARCH BROCHURE

VERSION 3

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Pharmaceutical Sciences



About the Faculty of Pharmaceutical Sciences



The Faculty of Pharmaceutical Sciences strives to establish itself as an important research centre for innovative research in the various areas of pharmaceutical sciences especially in clinical pharmacy, pharmaceutical chemistry, pharmaceutical technology and pharmaceutical biology. The Faculty of Pharmaceutical Sciences has an established track record of training pharmacists and scientists since its founding in the year 2000. The Faculty offers both undergraduate and postgraduate programmes with an

emphasis on serving the community. It has collaborated with hospitals, community pharmacies, pharmaceutical and other manufacturing industries. The Faculty of Pharmaceutical Sciences conducts the Bachelor of Pharmacy (Hons) degree, Master of Clinical Pharmacy Practice, Master of Science in Pharmaceutical Chemistry, Master of Science in Pharmaceutical Technology and Doctor of Philosophy (PhD) Pharmaceutical Sciences. The Faculty is comprised of dedicated academics, cutting-edge teaching and research facilities with seven fully equipped teaching laboratories and a research laboratory. Through its curricula at both the undergraduate and graduate levels, the school aims to train world leaders in the pharmaceutical sciences. In accordance with this, the education programmes cover not only the basic sciences, but also specialised sciences associated with industrial drug discovery and development, the theorisation of pharmacotherapy theories at medical institutions, and the science behind governmental pharmaceutical regulations.

Research is a significant component in the Faculty of Pharmaceutical Sciences. Lecturers who are also experienced researchers lead the Faculty's postgraduate programmes. This integration of coursework with research findings in our teaching enables learners to understand and extend their power of creativity and critical thinking in their pursuit towards acquiring new knowledge.

As the accumulated knowledge and new technologies produced by the pharmaceutical sciences fraternity increase and as the field continues to play an increasingly important role in internationalisation, society's awareness of its importance is also rising. The Faculty of Pharmaceutical Sciences seeks to expand its horizons and develop new cooperative links with various other disciplines of sciences such as medicine and information technology in order to implement its academic theories and contribute to a healthier world.



**DEPARTMENT OF CLINICAL
PHARMACY**



Full Name:

Dr Omotayo Oladuntoye Fatokun

Designation:

Assistant Professor

Department:

Clinical Pharmacy

Research areas or topics:

- Evaluation of the utilization and provision of written medicine information (WMI) among consumers, community pharmacists and private general practitioners in Klang Valley, Malaysia
- Perception and acceptance of pharmacogenetic testing among the general public in the Federal Territory of Kuala Lumpur, Malaysia
- Community pharmacists' intentions to report adverse drug reactions (ADRs) in Malaysia using the theory of planned behaviour: a cross-sectional study in Johor, Malaysia.

Summary of selected research work:

Exploring antibiotic use and practices in a Malaysian community

This study examined the pattern of antibiotic use and the practice among individuals in a Malaysian community. The study found that most individuals obtain antibiotics through prescriptions. Factors identified to be significantly associated with a greater likelihood of non-compliance with a full course of prescribed antibiotic treatment were male gender, lack of knowledge of antibiotic functions, and lack of awareness of antibiotic resistance. The study pointed out that patients education and counselling on antibiotics and antibacterial resistance are important to enhance compliance to antibiotic therapy and prevent antimicrobial resistance (AMR).

Representative Publications:

Fatokun, O. Olawepo, MN. (2016) Factors associated with prescribing restriction on oncology formulary drugs in Malaysia. *International Journal of Clinical Pharmacy* 38 (5), 1075-1079. doi:10.1007/s11096-016-0372-8.

Fatokun, O., (2014). Exploring antibiotic use and practices in a Malaysian community. *International Journal of Clinical Pharmacy*, 36 (3), 564-569.

Khan, M.U., Shah, S., Ahmad, A., & Fatokun, O. (2014). Knowledge and attitude of healthcare workers about Middle East respiratory syndrome in multispecialty hospitals of Qassim, Saudi Arabia. *BMC Public Health*, 14(1):1281. doi: 10.1186/1471-2458-14-1281. (10060), 2603. doi: 10.1016/S0140-6736(16)32121-3



Full Name:

Dr Aziz Ur Rahman

Designation:

Assistant Professor

Department:

Clinical Pharmacy

Research areas or topics:

Evaluating electronic cigarettes (ECG) dependency with tobacco cigarettes (TCG) among ex-smokers who converted to e-cigarettes

Summary of selected research work:

There have been heterogeneous regulatory responses about ECG that range from no regulation to complete bans. ECG need to be appropriately regulated in Malaysia. This study will evaluate the dependency of ECG by equivalent modified Fagerstrom test for nicotine dependence (FTND) scale and retrospectively compare them with dependency to tobacco cigarettes by original FTND scale among ex-smokers who had shifted to ECG use. The outcomes of the study will raise awareness amongst the consumers and policy makers about the addiction to ECGs. The study findings will also help in preparing the guidelines and vaping regulation in Malaysia.

Representative Publications:

Mohamed, MHN, Rahman, A, Jamshed, S and Mahmood Syed. Effectiveness and safety of electronic cigarettes among sole and dual user vapers in Kuantan and Pekan, Malaysia: A six-month observational study. BMC public health (2018) 18: 1028.

Rahman A, Nik Mohamed MH, Mahmood Syed. Nicotine estimations in electronic cigarette e-liquids among Malaysian marketed samples. Analytical chemistry letters, 2018; Vol 8 (1): PP 54-62.

Rahman A, Nik Mohamed MH, Jamshed S. Evaluating effectiveness and safety towards electronic cigarette among Malaysian vapers: one-month observational study. Archives of Pharmacy Practice. 2016; volume 7: PP: 43- 53.

Rahman A, Nik Mohamed MH, Jamshed S "safety and effectiveness of electronic cigarette as vapers perspective: A qualitative approach. International Medical Journal, Vol.22, No.5, PP.1-5, October 2015



Full Name:

Dr Khaled M. A. Alakhali

Designation:

Assistant Professor

Department:

Clinical Pharmacy

Research areas or topics:

- Prescribing Pattern of Antibiotics in Pediatric Patients in the Jazan Region, Kingdom of Saudi Arabia
- Description of patients' compliance in Aseer Region, Kingdom of Saudi Arabia
- Medication Errors at the Outpatient Pharmacy in Aseer Region Kingdom of Saudi Arabia

Summary of selected research work:

Description of patients' compliance in Aseer Region, Kingdom of Saudi Arabia

This study was conducted in Saudi Arabia. The evaluation of reasons for non-compliance of patients in the Aseer of Saudi Arabia was identified by questionnaire comprised 7 items. The findings were published in Indonesian J. Pharm. Vol. 26 No. 4 (2015).

Representative Publications:

K. M. Alakhali, P. S Daniel, A. M. Noohu AND S. A. Sirajudeen . Patient medication adherence and physician prescribing among congestive heart failure patients of Yemen. Indian Journal of Pharmaceutical Sciences. 2013; 75 (5): 557-562.

K. M. Alakhali. Method Validation for Analysis of Simvastatin in Human Plasma Using Liquid Chromatography Tandem Mass Spectrometry (LC-MS-MS). Journal of Clinical and Diagnostic Research. 2013; 7(12): 2739-2743.

K. M. Alakhali. Assessment of Self Medication Pattern of Pharmacist in Aseer Region, Saudi Arabia. Bull. Pharm. Sci., Assiut University. 2016; 39: 87-93.

Khaled M. Alakhali, Easwaran Vigneshwaran , Mohammad Asif Ansari Shaik. Effect of food and antacid on simvastatin bioavailability on healthy adult volunteers. Journal of Health Research and Reviews. 2018; 5: 26-32.



Full Name:

Dr Yeong Siew Wei

Designation:

Associate Professor

Department:

Clinical Pharmacy

Research areas or topics:

- Pharmaceuticals as emergent pollutants in the aquatic environment
- The roles of pharmacists in the safe usage of herbal products; assessing the public's knowledge on herbal products
- Beliefs and perceptions amongst breast cancer patients in relation to the usage of herbal medicine
- Design and development of a patient-focused medication adherence plan

Summary of selected research work:

Pharmaceuticals as emergent pollutants: This research programme studied the impact on the ecosystem due to the pollution levels of the aquatic environment by pharmaceuticals. This important public health topic is closely related with United Nations' Sustainable Development Goals.

Usage of herbal medicines: Herbal medicines has been primarily utilised before the development of modern medicines. There are concerns on the usage of herbal medicine without proper evidence. In addition, the research focused on the public's awareness level on the potentially harmful effect from herbal medicines, herb-drug and herb-disease interactions.

Representative Publications:

Yeong SW, Choong YC. Knowledge and characteristics of herbal supplement usage among community pharmacy customers in a Malaysian population. *Complementary Therapies in Medicine*. 2017 Dec; 35: 92 - 108. <https://doi.org/10.1016/j.ctim.2017.09.005>

Akowuah GA, Chin JH, Yeong SW, Quah SY. Comparative Study on the Nitric Oxide Scavenging and Hemolytic Activity of Fresh Leaf Juice and Dry Leaf Extracts of *Clinacanthus Nutans* (Burm. F) Lindau. *Der Pharma Chemica*. 2018; 10 (7): 152 – 157.

Kumar PV, Maki M, Yeong SW, Lee MT, Elumalai M, et al. Rabbit as an Animal Model for Pharmacokinetics Studies of Enteric Capsule Contains Recombinant Human Keratinocyte Growth Factor Loaded Chitosan Nanoparticles. *Current Clinical Pharmacology*. 2018 Nov19 [doi: 10.2174/1574884714666181120103907]



Full Name:

Muhammad Ahsan Iftikhar Baig

Designation:

Lecturer

Department:

Clinical Pharmacy

Research areas or topics:

- Clinical treatment outcomes of obese patients at tertiary and primary healthcare settings in Penang, Malaysia
- Knowledge, attitude and perception of Malaysian towards obesity
- Knowledge and attitude towards sexually transmitted diseases amongs undergraduate Malaysian students
- Lifestyles of type II diabetic patients under treatment at Malaysian tertiary healthcare providers
- Clinical outcomes of type II diabetic patients at a Malaysian tertiary healthcare setting
- Medication therapy evaluation among hospitalised pediatric patients diagnosed with asthma at Malaysian tertiary care setting
- Compliance and prescribing pattern of antibiotics among patients with upper respiratory tract infections at Malaysian tertiary care setting
- Drug therapy pattern in acute pain management of surgery patients at Malaysian tertiary healthcare setting

Summary of selected research work:

Study on overweight and obese patients has found that majority (87.1%) of the sample had central obesity which is the real culprit in developing metabolic syndromes. The outcome has indicated a slight improvement in BMI that has minimal or no clinical significance which could be better with the use of anti-obesity medication (prescribed in only 1.0% of obese patients) and adhering to clinical practice guidelines.

Representative Publications:

Baig, M.A.I., Sulaiman, S.A.S., Gillani, S.W. and Hariadha, E. A preliminary study on knowledge about obesity in Penang, Malaysia. IJPLS. (2013); 4(6), 2705-2712.

Baig M.A.I., Chang P Gie. Knowledge and Attitude towards Sexually Transmitted Diseases among undergraduate students at selected public and private universities in Malaysia. AJPCR. (2016). 9(6), 35.



Full Name:

Muhammad Junaid Farrukh

Designation:

Lecturer

Department:

Clinical Pharmacy

Research areas or topics:

- Pharmaceutical care issues in patients with atrial fibrillation receiving thromboprophylaxis
- Complementary, alternative medications and adherence to antiepileptic therapy

Summary of selected research work:

Complimentary and alternative medications and adherence to antiepileptic therapy:

The use of CAMs may vary due to the difference in cultural norms and healthcare settings. This study identified the usage pattern of complementary and alternative medicine (CAM) and its impact on antiepileptic drug (AED) adherence amongst patients with epilepsy. The most common reason for inadequate AED therapy and higher dependence on CAM was the patients' belief that epilepsy had a spiritual or psychological cause, rather than primarily being a disease of the brain.

Representative Publications:

Farrukh MJ, Tariq MH and Kifayat Ullah. (2017). Maternal and Perinatal Health Challenges in Pakistan. *Journal of Pharmacy Practice and Community Medicine*. 3. 76-77. 10.5530/jp-pcm.2017.2.18.

Farrukh MJ, Ming LC (2017). Barriers and strategies to improve influenza vaccination in Pakistan. *Journal of Infection and Public Health*. 10. 10.1016/j.jiph.2016.11.021.

Farrukh, Muhammad Junaid, Mohd Makmor-Bakry, Ernieda Hatah, and Hui Jan Tan. "Use of complementary and alternative medicine and adherence to antiepileptic drug therapy among epilepsy patients: a systematic review." *Patient preference and adherence* 12 (2018): 2111.

Farrukh, M.J., Tariq, M.H., Malik, O. and Khan, T.M., 2019. Valsartan recall: global regulatory overview and future challenges. *Therapeutic advances in drug safety*, 10, p.2042098618823458.



Full Name:

Fazlollah Keshavarzi

Designation:

Assistant Professor

Department:

Clinical Pharmacy

Research areas or topics:

- Post-licensure safety surveillance for human papilloma virus vaccine in Malaysia (Project for Master of Clinical Pharmacy Practice)
- A cross-sectional study of public knowledge, attitude and practice towards counterfeit, and adulterated medicines in Kuala Lumpur, Malaysia
- Malaysian Hospital Pharmacists' Perception and Attitude toward Medication Error Reporting: A Qualitative Study
- Assessment of knowledge, attitude and practice of Malaysian women towards Osteoporosis.
- Course Satisfaction and Perception of Malaysian Provisionally Registered Pharmacists toward Their Training; A Qualitative Study
- Prevalence of Atopic Dermatitis and Pattern of Drug Therapy in Malaysian Children
- Knowledge, attitude and practice of Malaysian women towards periconceptual use of folic acid

Summary of selected research work:

Prevalence of Atopic Dermatitis and Pattern of Drug Therapy in Malaysian Children

This survey was conducted in Kuala Lumpur among children selected from various kindergartens. The prevalence of atopic dermatitis was identified for the first time in Malaysia, using a validated scoring system. Moreover, the pattern of drug use by parents was explored. The findings were published in the Journal of Dermatitis in 2018.

Representative Publications:

Keshavarzi F, Choong MT, Wan MY, Yusoff NH. Periconceptual Folic Acid Usage Pattern in Malaysian Women. International Journal of Pharmaceutical and Clinical Research. 2016;8(8), 1199-1204.

Keshavarzi F. Renal function overestimation in underweight and/or non-ambulatory patients. International journal of clinical pharmacy. 2015;37 (5), 675-677.



Full Name:

Osama Helweh

Designation:

Lecturer

Department:

Clinical Pharmacy

Research areas or topics:

- Development and testing of an Objective Structured Clinical Exam (OSCE) in the Specialisation Clerkship Courses of the Master in Clinical Pharmacy programme, to assess its clinical competence
- Human Immunodeficiency Virus (HIV) drugs utilisation in the outpatient department (OPD) at Sungai Buloh Hospital
- Determinants of written medicine information provision among healthcare professionals in Malaysia
- Comparison between Beta-Blockers and Beta-Blockers combined with Diuretics as the first line Antihypertensive therapy in Tengku Ampuan Rahimah Hospital (HTAR) at Klang Malaysia
- Prevalence of sepsis in newborns receiving total parental nutrition support

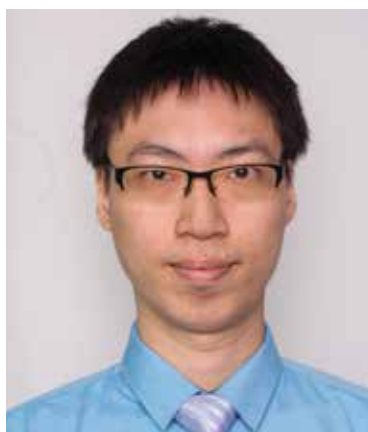
Summary of selected research work:

An Objective Structured Clinical Exam (OSCE) was designed and carried out for the Specialisation Clerkship for the Master of Clinical Pharmacy programme as a pilot for assessing clinical competency and skills of the students. The OSCE cases were developed by the faculty with assistance from expert facilitators. Stations were assessed by two clinical faculty members. Inter-rater concordance was examined.

Representative Publications:

Al-Saidi AHMA, Haridass S, Nouri A, Hassali MA, Allayla T, Helweh O (2018) Knowledge of Drug Information Resources among Students of College of Pharmacy and Nursing, University of Nizwa in Oman. *J Health Educ Res Dev* 6: 260.

Development and Implementation of Objective Structured Clinical Examination in Core Specialization Clerkship Courses of Master in Clinical Pharmacy: Pioneer's Experience in a Public University in Malaysia.



Full Name:

Yap Chuan Sheng

Designation:

Lecturer

Department:

Clinical Pharmacy

Research areas or topics:

- Knowledge and Awareness about Blood Pressure, Stroke and Prevalence of Hypertension: A Cross Sectional Study in Respondents in a Private University in Kuala Lumpur
- Knowledge and Awareness about Blood Pressure, Stroke and Prevalence of Hypertension: A Cross Sectional Study in Respondents in Community Pharmacies of Klang Valley

Summary of selected research work:

Knowledge and Awareness about Blood Pressure, Stroke and Prevalence of Hypertension: A Cross Sectional Study in Respondents in a Private University in Kuala Lumpur.

Increasing prevalence of hypertension among the Malaysian population is one of the main healthcare concerns nationally. This study aims to identify the prevalence of hypertension among university students and staff, and their knowledge and awareness regarding hypertension and one of its common complications - stroke.

Representative Publications:

Vuanghao, L.; Yap, C.S.; Chong, H.W.; Abdul Shukkoor, M.S.; Priya, M. Antimicrobial Evaluation and GC-MS Analysis of *Strobilanthes crispus* Ethanolic Leaf Extract. *Eur. J. Med. Plants* 2015, 10, 1-8.

Aidit S, Soh YC, Yap CS, Khan TM, Neoh CF, Shaharuddin S, Kassab YW, et al. Effect of Standardized Warfarin Treatment Protocol on Anticoagulant Effect: Comparison of a Warfarin Medication Therapy Adherence Clinic with Usual Medical Care. *Front Pharmacol.* 2017.



Full Name:

Anabelle Rose Joykin

Designation:

Lecturer

Department:

Clinical Pharmacy Practice

Research areas or topics:

- Research areas or topics:
- Public Health
- Pharmacy Education

Summary of selected research work:

The core research area is focused on studying the impact of health care and medication optimisation in the population along with improving the delivery of pharmacy education. Currently developing a keen interest in botany and pharmacognosy.



Full Name:

Por Choo Shiuan

Designation:

Lecturer

Department:

Clinical Pharmacy

Research areas or topics:

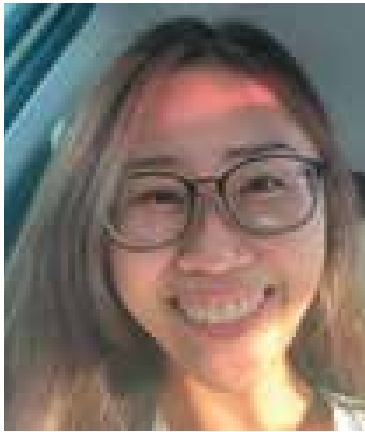
- Clinical Pharmacy Practice
- Counterfeit and Adulterated Medicine
- Natural Herbal Formulation

Summary of selected research work:

The core research area is focused on standardisation, investigation of mechanism of action of polyherbal formulation.

Representative Publications:

Anand Gaurav, Gabriel Akyirem Akowuah, Choo Shiuan Por. Quantitative structure–activity relationship modeling of s-triazines and 2-arylpyrimidine-s as selective PDE4B inhibitors, Thai Journal of Pharmaceutical Sciences. 2018, 42(2):69-83.



Full Name:

Hee Mei Qi

Designation:

Lecturer

Department:

Clinical Pharmacy

Research areas or topics:

- Public Health
- Social and Behavioural Pharmacy
- Clinical Pharmacy Practice

Summary of selected research work:

The core research area is focused on improving Malaysian health status through the health promotion programmes and activities for the benefits of community, especially on youth and the low-income groups.

Representative Publications:

Course Satisfaction and Perception of Malaysian Provisionally Registered Pharmacists Toward Their Training: A Qualitative Study (under review by Current Trends in Biotechnology and Pharmacy).

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**DEPARTMENT OF
PHARMACEUTICAL BIOLOGY**



Full Name:

Dr Sasikala Chinnappan

Designation:

Assistant Professor

Department:

Pharmaceutical Biology

Research areas or topics:

- Diabetes mellitus and its vascular complications
- Wound healing activities
- Toxicity studies

Summary of selected research work:

Natural products and their pharmacological in vivo screening (toxicity studies, diabetes mellitus and its vascular complication; wound healing activity; antiulcer; analgesic and antiinflammatory; antidepressant; diuretic; anthelmintic) and also ex-vivo studies by using tissues from various species.

Representative Publications:

C.Sasikala, YajamanSudhakar, R. Venkatalakshmi, K.Maheshkumar. Evaluation of diuretic activity of methanolic extract of *Filicium decipiens* in Rats. *Journal of Pharmacy Research*. 2011;4(11),4104-4105.

C.Sasikala, YajamanSudhakar. Antidiabetic and hypolipidemic effects of methanolic extract of *Filicium decipiens* in streptozotocin induced diabetic rats. *International Journal of Pharmaceutical Sciences and Research*. 2013;4(12):4741-4744.

C.Sasikala, YajamanSudhakar, Effect of compounds isolated from *Filicium decipiens* and *Ventilago maderaspatana* against diabetic nephropathy in streptozotocin induced diabetic rats. *Indian Journal of Pharmaceutical education and research*.2015;49(2):146-151.

Sasikala Chinnappan, Palanisamy Sivanandy, Rajenthina Sagarar, and Nagashekhara Molugulu. Assessment of Knowledge of Diabetes Mellitus in the Urban Areas of Klang District, Malaysia. *Pharmacy*.2017; 5:11.



Full Name:

Dr Mogana Sundari Rajagopal

Designation:

Dean and Associate Professor

Department:

Pharmaceutical Biology

Research areas or topics:

- Research into natural antimicrobial products in addressing antibiotic resistance (AMR)
- Dual inhibition of COX-2/5-LOX and inflammatory bioactive markers
- Natural products derived from polyherbal formulations for dysmenorrhea

Summary of selected research work:

The research is focused on natural products that are derived from bioactive compounds and herbal formulation to produce an effective antibacterial agent especially for the multi-drug resistant (MDR) bacterial clinical isolates. Research also includes discovering dual inhibitors for inflammation specifically COX-2/5-LOX with a special focus on polyherbal formulations for dysmenorrhea.

Representative Publications:

Mogana Rajagopal, Tracey D Bradshaw, Khoo Teng Jin CW. Asian Journal of Pharmacognosy. Asian J Pharmacogn. 2018;2(1):13–20.

Tan KK, Khoo TJ, Rajagopal M, Wiart C. Antibacterial alkaloids from *Artabotrys crassifolius* Hook.f. & Thomson. Nat Prod Res [Internet]. 2015;(March):1–4.

Mogana R, Adhikari A, Debnath S, Hazra S, Hazra B, Teng-Jin K, et al. The antiacetylcholinesterase and antileishmanial activities of *Canarium patentinervium* Miq. Biomed Res Int..2014 Jan

Mogana R, Wiart C. Anti-Inflammatory, Anticholinesterase, and Antioxidant Potential of Scopoletin Isolated from *Canarium patentinervium* Miq. (Burseraceae Kunth). Evidence-Based Complement Altern Med. 2013:734824, 7 pages.



Full Name:

Dr Ashok Kumar Balaraman

Designation:

Assistant Professor

Department:

Pharmaceutical Biology

Research areas or topics:

- Antidiabetics
- Anticancer
- Antimicrobials

Summary of selected research work:

Identification of potential leads for the antidiabetic, anticancer and antimicrobial drug developments.

Representative Publications:

Extract of passion fruit peel and seed of *Passiflora edulis* (Passifloraceae) attenuates oxidative stress in diabetic rat model. *Chinese Journal of Natural Medicine* 2015, 13(8):0001-0005

Synthesis of some novel 3, 5-disubstituted 1, 3, 4-oxadiazole derivatives and anticancer activity on EAC animal model. *Medicinal Chemistry Research*, 12, 1-8, 2011

Antihyperglycemic and hypolipidemic effects of *Melothriamaderaspatana* and *Coccinia indica* in Streptozotocin induced diabetes in rats- *Saudi Pharmaceutical Journal*, (Elsevier publication). 18:3, 173-178, 2010.

Synthesis, characterization and evaluation of anticancer activity of some new Schiff bases of 1, 3, 4-thiadiazole derivatives, *International Journal of Pharmacy and Pharmaceutical Sciences*, Vol 7, Issue 3, 2015



Full Name:

Haryati Binti Anuar

Designation:

Lecturer

Department:

Pharmaceutical Biology

Research areas or topics:

- Public Health
- Communicable Diseases
- Non-Communicable Diseases

Summary of selected research work:

Focused on ascertaining the chronic kidney disease perception scale development and to subsequently construct validity.

Representative Publications:

Assessing Respiratory Inflammation among Children Living Near to Non-sanitary Landfill Using Interleukin-6 (IL-6)

Knowledge and perceptions of regenerative medicine among physicians from Johor Bahru Malaysia



Full Name:

Dr Lee Ming Tatt

Designation:

Assistant Professor

Department:

Pharmaceutical Biology

Research areas or topics:

- Animal models of pathological pain and neuropsychiatric disorders
- Neuropharmacology and neurobiology of analgesia and neuropsychiatric disorders
- Complementary medicine in preclinical models

Summary of selected research work:

Employs various preclinical model of pathological pain and neuropsychiatric disorders to study the neuropharmacology of novel neurotherapeutics as well as neurobiology of diseases, eg. migraine, neuropathic pain, substance abuse, cognitive and mood disorders etc.

Representative Publications:

Tzeng HR*, Lee MT*, Fan PC, Knutson DE, Lai TH, Sieghart W, Cook J and Chiou LC (2021). α 6GABAA receptor positive modulators alleviate migraine-like grimaces in mice via compensating GABAergic deficits in trigeminal ganglia. *Neurotherapeutics*. DOI: 10.1007/s13311-020-00951-1 (IF 2019 = 6.035; JCR Q1, Pharmacology & Pharmacy) *Equal contribution.

Lee MT, Chen YH, Mackie K and Chiou LC (2021). Median nerve stimulation as a non-pharmacological approach to bypass analgesic tolerance to morphine: a proof-of-concept study in mice. *The Journal of Pain*. DOI: 10.1016/j.jpain.2020.09.003 (IF 2019 = 4.621; JCR Q1, Clinical Neurology)

Chou YH*, Hor CC*, Lee MT*, Lee HJ, Guerrini R, Calo G, and Chiou LC (2021). Stress induces reinstatement of extinguished cocaine conditioned place preference by a sequential signaling via neuropeptide S, orexin and endocannabinoid. *Addiction Biology*. DOI: 10.1111/adb.12971 (IF 2019 = 4.121; JCR Q1, Substance Abuse) *Equal contribution

Lee MT*, Chiu YT*, Chiu YC*, Hor CC, Lee HJ, Guerrini R, Calo G, and Chiou LC. Neuropeptide S-initiated sequential cascade mediated by OX1, NK1, mGlu5 and CB1 receptors: A pivotal role in stress-induced analgesia. (2020) *Journal of Biomedical Science* 27:7 (IF 2019 = 5.762; JCR Q1, Medicine, Research & Experimental) *Equal contribution

Chen YH, Lee HJ*, Lee MT*, Wu YT, Lee YH, Hwang LL, Hung MS, Zimmer A, Mackie K, and Chiou LC. Median Nerve Stimulation Induces Analgesia via Orexin-initiated Endocannabinoid Disinhibition in the Periaqueductal Gray. (2018) *Proceedings of the National Academy of Sciences of the United States of America*. Nov 6; 115 (45):E10720-E10729. (IF 2018 = 9.580, JCR Q1, Multidisciplinary Sciences) *Equal contribution

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**DEPARTMENT OF
PHARMACEUTICAL
CHEMISTRY**



Full Name:

Dr Gabriel Akyirem Akowuah

Designation:

Associate Professor

Department:

Pharmaceutical Chemistry

Research areas or topics:

- Phytochemistry and natural products drug development
- Development and validation of analytical and bioanalytical methods
- Pharmacokinetic, bioavailability and toxicology studies of bioactive compounds

Summary of selected research work:

The research focuses on the absorption, distribution, metabolism, and elimination of bioactive compounds in supplements and herbal medicinal products as well as their interaction with drugs. The effect of the bioactive extracts on the absorption of conventional drugs and CYP450 - mediated drug metabolism enzymes when the extracts are co-administered with the conventional drugs is important to ensure the safety of the use of herbal medicinal products and botanical supplements.

Representative Publications:

Akowuah AG, Zhari I, Mariam A, Analysis of urinary andrographolides and antioxidant status after oral administration of *Andrographis paniculata* leaf extract in rats. *Food Chemical Toxicology* 2008, 46, 3616-3620.

Akowuah, A.G., Zhari, I., Mariam, A., Yam, M.F. (2009). Absorption of andrographolides from *Andrographis paniculata* and its antioxidative effect in erythrocytes of rats exposed to CCl₄. *Food Chemical Toxicology*, 2321-2326. Doi.1016/j.fct.2009.06.022.

Ahmad A, Lim CP, Akowuah GA, Ismail NN, et al., Hor, S.Y., Ang, L.F., Yam, M.F. Safety assessment of standardised methanol extract of *Cinnamomum burmannii*. *Phytomedicine* 2013, 20, 1124-1130.

Quah, S.Y., Chin, J.H., Akowuah, A.G., Shaik I. K, Yeong, S.W., Chacko Sabu, M. C. (2017). Cytotoxicity and cytochrome P450 inhibitory activities of *Clinacanthus nutans*. *Drug Metabolism Personalized Therapy*, 32 (1): 59-66.



Full Name:

Dr Anand Gaurav

Designation:

Assistant Professor

Department:

Pharmaceutical Chemistry

Research areas or topics:

- Computer Aided Drug Design and Discovery
- Drug Synthesis

Summary of selected research work:

The research focuses on the application of computational tools to solve various issues related to discovery and development of new drugs. The study will, among others, include analysing small changes in the structure of isoenzymes and the significant difference they have in binding affinity of ligands to them. The research incorporates well established computational techniques like docking, molecular dynamics simulations as well as ligand-based drug design methods like QSAR and pharmacophore modelling.

Representative Publications:

Mayasah Al-Nema, Anand Gaurav, Gabriel A Akowuah. Discovery of Natural Product Inhibitors of Phosphodiesterase 10A as Novel Therapeutic Drug for Schizophrenia Using a Multistep Virtual Screening. *Computational Biology and Chemistry*. 2018, 77, 52-63.

Xing, M; Gautam, V; Akowuah, GA; Gaurav A. Structure based design of selective phosphodiesterase 4B inhibitors based on ginger phenolic compounds. *Journal of Biomolecular Structure and Dynamics*. 2017, 35(13), 2910-2924. DOI 10.1080/07391102.2016.1234417.

Anand Gaurav, Ranjit Singh. 3D QSAR Pharmacophore, CoMFA and CoMSIA based design and docking studies on phenyl alkyl ketones as inhibitors of phosphodiesterase 4. *Medicinal Chemistry*, 2012, 8, 5894-912.

Anand Gaurav, Vertika Gautam, Ranjit Singh. An overview on synthetic methodologies and biological activities of pyrazoloquinolines. *Mini-Reviews in Medicinal Chemistry*, 2010, 10, 1194-1210.



Full Name:

Dr Chew Yik Ling

Designation:

Assistant Professor

Department:

Pharmaceutical Chemistry

Research areas or topics:

- Phytochemical investigation of tropical plants and medicinal herbs
- Therapeutic use of tropical plants and medicinal plant herbs
- Usage of natural products in managing skin diseases

Summary of selected research work:

The study revolves around biological activities and medicinal properties of plants, assessment, evaluation and biochemical mechanism from potential herbal medicines in atopic dermatitis management.

Representative Publications:

Chew YL, Lim YY. Evaluation and Comparison of Antioxidant Activity of Leaves, Pericarps and Pulps of Three Garcinia Species in Malaysia. *Free Radicals and Antioxidants*. 2018 Jul 1;8(2).

Goh YY, Keshavarzi F, Chew YL. Prevalence of Atopic Dermatitis and Pattern of Drug Therapy in Malaysian Children. *Dermatitis*. 2018 May 1;29(3):151-61.

Chew YL, Mahadi AM, Wong KM, Goh JK. Anti-methicillin-resistance Staphylococcus aureus (MRSA) compounds from Bauhinia kockiana Korth. And their mechanism of antibacterial activity. *BMC complementary and alternative medicine*. 2018 Dec;18(1):70.

Chew YL, Chan EW, Tan PL, Lim YY, Stanlas J, Goh JK. Assessment of phytochemical content, polyphenolic composition, antioxidant and antibacterial activities of Leguminosae medicinal plants in Peninsular Malaysia. *BMC complementary and alternative medicine*. 2011 Dec;11(1):12.



Full Name:

Dr Dharmendra Kumar

Designation:

Assistant Professor

Department:

Pharmaceutical Chemistry

Research areas or topics:

- Phytochemical investigation and pharmacological screening of medicinal plants
- Development and validation of a RP-HPLC method for active pharmaceutical ingredients
- Synthesis, characterisation and biological activity of heterocyclic compounds

Summary of selected research work:

The research focuses on isolation, characterisation and pharmacological activities (anticataract, antidiabetic and ulcerative colitis) of medicinal plants. Analytical method development of active API and synthesis and characterisation of some derivatives of heterocyclic compounds are also being explored.

Representative Publications:

D Kumar and R Singh, Anticataract Activity of *Acorus calamus* Linn. Against Hydrogen Peroxide Induced Cataractogenesis in Goat Eyes, *International Journal of Pharmaceutical Sciences Review and Research*, 2011, 11(2), 112-115.

Dharmendra Kumar, Rakesh Kr Gupta, Amrendra Kr Chaudhary, Mukesh Maithani, Ranjit Singh. Antidiabetic activity of *Passiflora incarnata* Linn. in Streptozotocin-induced diabetes in mice, *Journal of Ethnopharmacology*, 2012, 139(3), 801-806.

YN Dey, MM Wanjari, D Kumar, V Lomash, AD Jadhav, Curative effect of *Amorphophallus paeoniifolius* tuber on experimental hemorrhoids in rats, *Journal of Ethnopharmacology*, 2016, 192, 183-191.

YN Dey, G Sharma, MM Wanjari, D Kumar, V Lomash, AD Jadhav, Beneficial effect of *Amorphophallus paeoniifolius* tuber on experimental ulcerative colitis in rats, *Pharmaceutical Biology*, 2016, 55 (1), 53-62.



Full Name:

Dr Shaik Ibrahim Khalivulla

Designation:

Assistant Professor

Department:

Pharmaceutical Chemistry

Research areas or topics:

- HPLC, GC and FTIR method development and validation techniques for determination of pharmaceutical drugs
- Phytochemical analysis and chemical characterisation of bioactive plant extracts for wound healing, anticancer and oral toxicity studies
- Design, synthesis and evaluation of active secondary metabolites for Alzheimer disease

Summary of selected research work:

The research involves the study of bioassay guided isolation and spectral characterisation of active natural products and to subsequently synthesise their analogues in drug discovery and development research.

Representative Publications:

A new biflavanone from *Ochna lanceolata*, *Nat. Prod. Commun.*, 2008, 3, 1487-1490.

Antinociceptive activity of a synthetic curcuminoid analogue, 2,6-bis-(4-hydroxy-3-methoxybenzylidene)cyclo-hexanone, on Nociception-induced models in Mice. *Basic & Clinical Pharm. & Toxicol.*, 2012, 110, 275-285.

Synthesis of Bisindolylmethanes and its cytotoxicity properties. *Int. J. Mol. Sci.*, 2013, 14, 1843-1853

Determination of Alendronate sodium in tablets by Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy. *Current Bioactive Compounds*. 2017, 13, 71-77.

The image features a dark blue background with a large, light blue geometric shape in the upper right quadrant. This shape is composed of a vertical rectangle and a right-angled triangle that shares its hypotenuse with the bottom edge of the rectangle. The text is centered in the lower half of the image.

**DEPARTMENT OF
PHARMACEUTICAL
TECHNOLOGY**



Full Name:

Dr Palanirajan Vijayarajkumar

Designation:

Associate Professor

Department:

Pharmaceutical Technology

Research areas or topics:

- Formulation of vaccines containing live recombinant
- Recombinant protein delivery systems
- Drug delivery systems and evaluation techniques
- Nutritional supplement formulation

Summary of selected research work:

The ongoing research is on conventional and nanoparticulated drug delivery systems, dendrimers, novel ligands for targeted drug delivery system, recombinant proteins, live vaccines and phytochemicals delivery systems.

Representative Publications:

Kumar PV, Maki AM, Takahje ML, Wei YS, Tatt LM, Majeed BA, Bakar A. Detection of Formation of Recombinant Human Keratinocyte Growth Factor Loaded Chitosan Nanoparticles Based on its Optical Properties. *Current Nanoscience*. 2018 Apr 1;14(2):127-35.

Maki MA, Kumar PV, Wei YS. Optimization and In-vitro Evaluation of Coating Process for Film-Coated Tablets. *International Journal of Food Engineering*. 2017 Nov 1;13(11).

Nusrat Hossain, Palanirajan Vijayaraj Kumar, Yeong Siew Wei. A comparative study of phytochemical content in air dried and lyophilized *Carica papaya* leaves. *International Journal of Green Pharmacy*. 2016;10(4):1-6.

Nusrat Hossain, Palanirajan Vijayaraj Kumar, Yeong Siew Wei, Dengue and drawbacks of marketed *Carica papaya* leaves supplements. *International Journal of Green Pharmacy (IJGP)*. 2016 Mar 21;10(1).

Kumar PV, VS Lokesh B. Designing and In-Vitro Characterization of Micelle Forming Amphiphilic PEGylated Rapamycin Nanocarriers for the Treatment of Gastric Cancer. *Current drug delivery*. 2014 Oct 1;11(5):613-20.



Full Name:

Dr Ashok Kumar Janakiraman

Designation:

Assistant Professor

Department:

Pharmaceutical Technology

Research areas or topics:

- Preparation and characterisation of self-micro emulsifying drug delivery system
- Development and evaluation of sustained release matrix tablets
- Development and evaluation of transdermal patches

Summary of selected research work:

The research is focused on the study of self-micro emulsifying drug delivery systems (SMEDDS) for enhancing the oral bioavailability of poorly water-soluble drugs.

Representative Publications:

Ashok KJ, Sumathi A, Mohamed ST, Ramkanth S, Odaya KP, Gopal V. Design and evaluation of Carvedilol nanocrystals sustained release Tablets. *Journal of Applied Pharmaceutical Science*. 2017;7(4): 61-68

Ramkanth S, Ashok KJ, Thiruveadarajan VS, Gopinath C. Preparation and characterization of self-microemulsifying drug delivery system of carvedilol. *International Journal of Research in Pharmaceutical Sciences*. 2016;7(2): 157-163.

Ashok KJ, Ramkanth S, Lakshmana Prabu S, Gopal V. Enhancement of Saturation Solubility and In Vitro Dissolution of Carvedilol Nanoparticles. *International Journal of Current Pharmaceutical Review and Research*. 2015;6(6): 269-273.

Ashok KJ, Gopal V. Development and evaluation of sustained release matrix transdermal patches of Nano Carvedilol. *International Journal of Research in Pharmaceutical Sciences*. 2013; 4(2): 321-327.



Full Name:

Melbha Starlin Chellathurai

Designation:

Lecturer

Department:

Pharmaceutical Technology

Research areas or topics:

- Oral drug delivery systems
- Transdermal drug delivery systems
- Teaching and learning methodologies for pharmaceutical calculations

Summary of selected research work:

The research work revolves around the formulation and evaluation of transdermal microneedles for a regenerative drug. Transdermal microneedles for a macromolecular drug was prepared using cost-effective molding fabrication technology to evaluate its design and release characteristics. Adopting a flipped classroom approach for Pharmaceutical Calculations, the aim of the study was to explore the flipped classroom model as a student-centered learning in the teaching and learning of pharmaceutical calculations. Students were exposed to a series of vodcasts (pedagogically segmented chunks of video lectures) which accentuates their self-paced and self-regulated learning. These vodcasts underlined the step-by-step process of pharmacokinetic calculations. Subsequently, a survey was administered to measure students' learning experience and learning engagement in the flipped classroom approach.

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