



PhD studentship

'Elucidation of Sarawak rice extracts efficacies on molecular mechanisms of growth inhibition, cell cycle arrest and apoptosis induction in human colorectal cancer cell lines.'

There is a full-time PhD studentship position within the Department of Paraclinical Sciences, Faculty of Medicine and Health Sciences (FMHS), Universiti Malaysia Sarawak (UNIMAS), under Fundamental Research Grant Scheme (FRGS) funded by the Ministry of Education Malaysia (MOE). This full-time PhD studentship is an exciting opportunity for a master's degree candidate with a strong cancer biology component and a working knowledge of colorectal cancer cell lines.

Project Background:

Colorectal cancer (CRC) is the 3rd highest cause of global mortality and ranks 2nd in Malaysia. Non-heritable CRC is a preventable, lifestyle and diet-linked disease with heavy burden on national human capital, economy and healthcare. Rice, a major staple diet in South East Asia had been extensively studied for its anticancer properties (Chung, Lee, Yi, & Kang, 2018; Minh et al., 2019; Tan & Norhaizan, 2017). As different geographical areas produce rice with different ratio of chemical constituents, the anticancer properties of rice vary (Teo, 2014; Wei et al., 2012). In Sarawak, there are more than 100 varieties of rice, many of which yet to be analysed for their chemical constituents and anticancer properties, specifically against CRC. This study will assess the fragrant *Oryza sativa* var Bajong from the lowlands in Sarawak for its chemical constituents and antioxidant properties. The anticancer properties of these rice extracts will be evaluated on their efficacies in inhibiting cell proliferation, arresting cell cycle and triggering apoptosis in 2 human CRC cell lines, HT-29 and HCT116 respectively. These cell lines are selected based on their characteristics and use in *in vivo* studies of different carcinogenesis stages. The most efficacious rice extract in this study will merit further investigation to elucidate mechanistic and target genes in the signalling pathways and subsequent *in vivo* CRC chemoprevention mechanism(s) as means to translate evidence-based knowledge from bench-to-bedside. As these findings will confer medicinal, nutritional and agricultural values to this plantation crop, it will spearhead the modernization and commercialization of this crop, enhance societal health, well-being and economy, especially those in the B40 income group. Additionally, this study will generate RICE (Rice in Cancer Eradication) database and form a pipeline to assess other local rice varieties in Sarawak against cancer.

Interested students, please contact Dr. Isabel Fong Lim (flisabel@unimas.my)

Supervisor and co-supervisors:

1. Dr. Isabel Fong Lim, Department of Paraclinical Sciences, Faculty of Medicine and Health Sciences, UNIMAS
2. Prof Dr. Khong Heng Yen, Faculty of Applied Sciences, Universiti Teknologi MARA, Sarawak
3. Dr. Kueh Kiong Hook, Agriculture Research Centre, Sarawak
4. Madam Tay Siow Phing, Department of Pathology, FMHS, UNIMAS

The studentship is for 36 months. **Starting date no later than 1st February, 2021.**

Applicants will hold a Master's degree in a cancer related topic or in biology/biomedicine (merit or distinction). The ideal candidate will have prior laboratory experience in cancer cell and molecular biology techniques. This studentship comes with RM1500 per month (incl. EPF) for 36 months, excluding tuition fees.

Applicants should submit their CV and a covering letter, including full contact details of two referees, to Dr. Isabel Fong Lim (flisabel@unimas.my). For more information on the UNIMAS PhD entry and application requirements, please visit this site (<http://www.fmhs.unimas.my/index.php/admission/postgraduate>).

Closing date for application is 31st December 2020.