## International exchange research activities

## Department of Endocrinology and Metabolism. School of Medicine Kagawa University

## Title: Sharing the benefit of D-allulose with Malaysian

My first on-hand experience joining the Sakura Science Program organized by the Faculty of Medicine, Kagawa University in 2017 sparked my interest to further my post graduate study in this reputable university. I am very impressed with the successful research projects and strong collaborative works by Kagawa Team in improving non – communicable diseases especially Diabetes Mellitus in Kagawa. From that moment, I planned to further my Ph.D study under the guidance of Kagawa University researchers and fulfill my research interest in health prevention. Finally, in June 2019, I successfully registered at the Graduate School of Medicine in Kagawa University. I am honored and truly grateful to my supervisor Prof Koji Murao and members of the Department of Endocrinology and Metabolism for welcoming me to be part of the research team and guiding me throughout my research journey at Kagawa University.

My research project focuses on a clinical study in which the rare sugar D-allulose, a niche product of Kagawa University, was used. The target group was citizens in my home country, Malaysia, who have type 2 diabetes and practise fasting during Ramadan (Muslim fasting month). During Ramadan in Malaysia, it is a norm for people to prepare special food for iftar (meal for breaking fast at sunset), and the meals are typically higher in carbohydrate and sugar. This common practice raises postprandial hyperglycemia, particularly in people with uncontrolled diabetes. As D-allulose has been shown it anti-hyperglycemic effect among the Japanese population we, therefore, investigated its effect on the Malaysian population. We used a continuous flash glucose monitoring device (FGM) to measure the glucose level. This device is very new in Malaysia and it is not widely applied. The research activities in Malaysia lasted 5 months and were completed in May 2021. The findings were encouraging. We were very pleased to see that D-allulose significantly improved glucose levels, particularly postprandial glucose level, in Malaysian patients with type 2 diabetes.

Our research was a collaboration between Universiti Putra Malaysia and Kagawa University. The data collection was conducted at a tertiary government hospital located at the East Coast of Malaysia. Our project had received funding from Matsutani Chemical Industry Co., Ltd., Japan. and we also successfully secured the university grant for International Joint Research on Asia Research Plan.

This research was a challenging journey as data collection in Malaysia was performed during the global COVID-19 outbreak, and Malaysia was also experiencing a bad situation. During this crisis, the safety of our patients and members of our research team were always our top priority. With the excellent collaboration and support that we received from hospital staff, we managed to complete the data collection without severe complication. Even though the number of participants was small, they gave full commitment to this study. On the other aspect, indirectly I was grateful to share about D-allulose and FGM with the staff as the device are still relatively new in Malaysia. For myself, this situation taught me a lot about the process of becoming a good and wise researcher.

I would like to express my heartfelt gratitude to Kagawa University Management (International section) for granting me permission to return to Malaysia, despite their grave

concern about my safety in Malaysia. I duly take the opportunity to ensure that the international collaboration is finally achieved and my Ph.D. studies progresses smoothly

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Proposal research presentation with Prof. Ken Izumori and Prof Kazuya Akimitsu



With very supportive staffs during data collection in Malaysia.



Updating my research progress from Malaysia to my supervisor and department members through routine virtual research seminar at Kagawa University.