EXTRACTION OF FRUCTOOLIGOSACCHARIDES FROM *Psidium guajava* PEELS AS POTENTIAL PREBIOTIC

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This Final Year Project Report entitled "**Extraction of Fructooligosaccharides from *Psidium guajava* Peels as A Potential Prebiotic**" was submitted by Luqman Hakim Bin Yuzaimi in partial fulfilment of the requirements for the Degree of Bachelor of Sciences (Hons.) Chemistry with Management, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

EXTRACTION OF FRUCTOOLIGOSACCHARIDES FROM *Psidium guajava* PEELS AS POTENTIAL PREBIOTIC

Guava, commonly known as *Psidium guajava* L., is a tropical shrub tree belonging to the *Myrtaceae* family that may found in Malaysia. Prebiotics such as FOS are present in fruits and vegetables where their undigestible food substances give advantages to the host. In juice production industry, usually peels and seeds are discarded away where it may lead to waste management problem. In addition, every part of guava has various types of uses in traditional medicine thus peel may be beneficial to the gut health. There is no research and studies related with the extraction of prebiotics from the guava peels. FOS from the guava peels were extracted at three different temperatures which is GPEaq 70 °C, GPEaq 80 °C and GPEaq 90 °C. In order to determine presence of FOS in guava peels, Seliwanoff's test and total carbohydrate content (TCC) by using sulfuric acid UV method were used in this research. While HPLC and FT-IR were used to characterize the FOS from all three guava peel extracts. Seliwanoff's test shows a positive result where presence of ketose group, GPEaq at three different temperatures turned into cherry red coloured complex after dehydration ketose sugars to furfural by HCl. It was found that GPEaq at 80 °C has the highest total carbohydrate content with 40.4%. Based on the FT-IR spectra shows presence of CH_2-OH lying on fructose ring indicates that FOS are presence in all three guava peel extracts. HPLC shows that retention time of all three guava peel extracts was slightly lower than the retention of fructose standard.