

THE EFFECT OF DIETARY FIBRE AND FOOD GLUCOSE  
ON THE RATE OF GLUCOSE ABSORPTION IN THE SMALL INTESTINE  
OF MAN  
BY  
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**DETERMINATION OF GLYCEMIC INDEX AND BLOOD GLUCOSE  
RESPONSE AMONG YOUNG HEALTHY ADULTS AFTER CONSUMING  
WHITE SWEET POTATOES (*Ipomoea batatas*) AND CEMPEDAK SEEDS  
(*Artocarpus interger*)**

**By**

**SITI SYAMIMI BINTI AMINUDDIN**

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## DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or currently submitted for any degree at UMT or other institution.



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**DETERMINATION OF GLYCEMIC INDEX AND BLOOD GLUCOSE  
RESPONSE AMONG YOUNG HEALTHY ADULTS AFTER CONSUMING  
WHITE SWEET POTATOES AND CEMPEDAK SEEDS**

**ABSTRACT**

This randomize cross-over study was carried out to determine the blood glucose responses among 11 healthy young adults age 21-30 years old, after consuming different test meals which are cempedak seeds and white sweet potatoes in different occasions. Simple randomized sampling has been done among student from Universiti Malaysia Terengganu (UMT). After 8-10 hours fasting, subjects were asked to eat each test fruit and reference carbohydrate (glucose), at different time within 15 minutes. Finger prick capillary blood sample were taken at 0, 15, 30, 45, 90 and 120 minutes after eating the meals. The blood glucose response was obtained by calculating area under the curve (AUC) This study shows that peak value of blood glucose response of all fruits which are cempedak seeds and white sweet potatoes, and reference food was at 30 minutes. Thus, between male and female after consuming white sweet potatoes and cempedak seeds also have the high peak value at time 30 minutes. Cempedak seeds have the lowest ( $1.74 \pm 0.59$  mmol/L) as compared to white sweet potatoes ( $1.90 \pm 0.76$  mmol/L). The Glycemic index was determine according to the standardized methodology. This study showed that both test meals, could be categorized as having medium GI. The GI of white sweet potatoes (GI=67) and cempedak seeds (GI=58), were lower than glucose (reference food) that have GI=100 In conclusion, the results of the study shows the suitable fruits to be taken by diabetic patient.

**PENENTUAN GLYCEMIC INDEX DAN RESPON GLUKOSA DARAH  
DIKALANGAN DEWASA MUDA SELEPAS MENGAMBIL BIJI CEPEDAK  
DAN UBI KELEDEK PUTIH**

**ABSTRAK**

Kajian rawak secara bersilang ini dijalankan untuk menentukan perubahan paras glukosa darah dikalangan 11 orang dewasa muda yang sihat berumur 21-23 tahun selepas mengambil dua jenis buah-buahan iaitu biji cempedak, dan ubu keledek putih. Persampelan rawak mudah ini dilakukan ke atas pelajar-pelajar Universiti Malaysia Terengganu. Selepas berpuasa selama 8-10 jam, subjek diminta memakan setiap jenis buah-buahan dan makanan rujukan (glukosa secara bersilang) dalam masa 15 minit. Sampel darah kapilari daripada cucukan jari diambil pada masa 0, 15, 30, 45, 90 dan 120 minit selepas subjek menghabiskan buah-buahan tersebut. Respon glukosa darah dikira berdasarkan pengiraan luas di bawah graf. Berdasarkan kajian, kesemua makanan kajian iaitu biji cempedak, ubi keledek putih serta glukosa rujukan mempunyai respon puncak pada minit ke 30. Bagi kajian antara jantina pula, kedua-dua lelaki dan perempuan mempunyai respon puncak juga pada minit ke-30. Cempedak menunjukkan respon puncak terendah iaitu sebanyak  $1.74 \pm 0.59$  mmol/L berbanding ubi keledek putih iaitu  $1.90 \pm 0.76$  mmol/L. Antara jantina pula, tiada perbezaan yang significant untuk kedua-dua makanan ujian tetapi response glukosa darah menunjukkan lelaki lebih tinggi untuk kedua-dua makanan ujian. Glycemic index akan ditentukan melalui kaedah yang telah ditetapkan dan didapati ubi keledek putih mempunyai nilai GI lebih tinggi (GI=67) diikuti biji cempedak (GI=58) berbanding glukosa rujukan (GI=100). Kedua-dua makanan kajian dikategorikan sebagai makanan yang mempunyai nilai glycemic index yang sederhana berbanding glukosa rujukan. Sebagai kesimpulan, kajian ini mencadangkan buah-buahan yang sesuai diambil oleh pesakit diabetis.