[illegible] OF BLOOD GLUCOSE RESPONSE AND GLYCEMIC INDEX OF HEALTHY YOUNG ADULTS AFTER EATING BLACK BEANS (*Phaseolus vulgaris*) AND RED BEANS (*Vigna angularis*).

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Determination of blood glucose response and glycemic index on healthy young adults after eating black beans (Phaselous vulgaris) and red beans (Vigna angularis / Halimatus Saadiah Ahmad.

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Lihat Sebelah

DETERMINATION OF BLOOD GLUCOSE RESPONSE AND GLYCEMIC INDEX ON HEALTHY YOUNG ADULTS AFTER EATING BLACK BEANS (*Phaselous vulgaris*) AND RED BEANS (*Vigna angularis*).

By

HALIMATUS SAADIAH BT AHMAD

RESEARCH PROJECT submitted in partial fulfillment of the requirements for the Degree of Bachelor of Food Science (Food Service and Nutrition)

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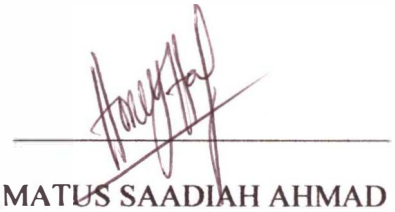
DECLARATION

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



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DETERMINATION OF BLOOD GLUCOSE RESPONS AND GLYCEMIC INDEX ON HEALTHY YOUNG ADULTS AFTER EATING BLACK BEANS (*Phaselous vulgaris*) AND RED BEANS (*Vigna angularis*)

ABSTRACT

This randomized cross-sectional study was carried out to determined the blood glucose response after consuming red bean and black bean. Twelve healthy young adults (6 men and 6 women) aged between 20 to 24 years old were recruited for this study. Simple randomized sampling was done among students in Universiti Malaysia Terengganu, Terengganu. Mean aged and BMI of the respondents are 22.5±0.9 years old and 20.32±1.26 kg/m^2, respectively. This study subjects consumed 2 types of test meals, red bean and black bean plus a reference carbohydrate (glucose) after an overnight fasting (10-12 hours) on different days. Finger prick capillary blood samples were obtained by 0 (fasting), 15,30,45,60,90 and 120 minutes after consuming the beans and reference carbohydrate. This study showed the blood glucose response reached peak at 30 minutes study. from the result obtained, the response of blood glucose in red bean is 0.35 ± 1.1 mmol/L and black bean which is higher then red bean, 0.67 ± 0.4 mmol/L. The mean of blood glucose response in reference carbohydrate is 1.78 ± 1.4 mmol/L. From the study, there is no significant difference obtained in both red bean and black bean. The area of the curve (AUC) for reference carbohydrate is 128.79 ± 25.57 mmol.min/L, while for red bean and black bean is 21.84 ± 5.69 mmol.min/L dan 20.46 ± 4.60 mmol.min/L, respectively. In conclusion, red bean and black bean had low glycemic index which is 16.95 and 15.85, respectively and could be used as recommendation for diabetic patients for optimum glycemic control.

PENENTUAN RESPON GLUKOSA DARAH DAN INDEKS GLISEMIK SELEPAS MEMAKAN KACANG MERAH (*Vigna angularis*) DAN KACANG HITAM (*Phaselous vulgaris)* PADA DEWASA MUDA YANG SIHAT

ABSTRAK

Kajian rawak secara bersilang ini dijalankan untuk menentukan perubahan paras glukosa darah di kalangan 12 orang dewasa muda yang sihat berumur 20 hingga 24 tahun selepas mengambil dua jenis kacang iaitu kacang merah dan kacang hitam. Persampelan rawak mudah dilakukan ke atas pelajar Universiti Malaysia Terengganu, Teengganu. Selepas berpuasa selama 10 hingga 12 jam, subjek diminta memakan setiap jenis buah-buahan dan memakan karbohidrat rujukan (glukosa) secara berasingan dalam jangkamasa 15 minit. Sample darah daripada kapilari daripada cucukan pada jari diambil pada sela masa 0, 15, 30,60, 90 dan 120 minit selepas subjek menghabiskan kacang-kacang tersebut. Daripada analisis yang dilakukan, didapati bahawa min bagi IJT dan umur subjek masing-masing ialah 20.32±1.26 kg/m^2 dan 22.5±0.9 tahun. Kajian ini juga menunjukan bahawa kesemua kekacang kajian dan karbohidrat rujukan mencapai respon puncak pada masa ke-30 minit. Daripada hasil yang diperolehi, didapati bahawa kacang merah mempunyai respon glukosa darah 0.35 ± 1.1 mmol/L manakala kacang hitam mempunyai respon glukosa darah melebihi kacang merah iaitu 0.67 ± 0.4 mmol/L. Karbohidrat rujukan pula adalah sebanyak 1.78 ± 1.4 mmol/L. Daripada kajian yang dilakukan, tiada perbezaan yang bererti antara jantina pada kacang merah dan kacang hitam. Nilai kawasan bawah keluk (AUC) bagi karbohidrat rujukan adalah 128.79 ± 25.57 mmol.min/L manakala bagi kacang merah dan kacang hitam pula masing-masing 21.84 ± 5.69 mmol.min/L dan 20.46 ± 4.60 mmol.min/L. Sebagai kesimpulannya, hasil kajian ini dapat mencadangkan kacang merah dan kacang hitam sebagai makanan yang sesuai untuk pesakit diabetis dengan nilai glycemic kacang merah dan kacang hitam masing-masing 16.95 dan 15.85.