

DETERMINATION OF GLYCEMIC RESPONSES OF
PUMPKIN MUFFIN IN HEALTHY ADULTS

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HEALTHY ADULTS

By
Chang Yah Huay

Research Report submitted in partial fulfillment of the requirements for the degree of
Bachelor of Food Sciences (Food Service and Nutrition)

Department of Food Science
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
UNIVERSITY MALAYSIA TERENGGANU
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FAKULTI AGROTEKNOLOGI DAN SAINS MAKANAN
UNIVERSITI MALAYSIA TERENGGANU

PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

Determination of glycaemic responses of pumpkin muffin in healthy adults

oleh *Chang Yah Huay*, No.Matrik *UK12031*

telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan *Sains Makanan*

sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda *Sains Makanan (Perkhidmatan Makanan & Pemakanan)*

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FINAL REPORT ENDORSEMENT FORM

Hereby, it is admitted and certified that the research report entitled: Determination of Glycemic Responses of Pumpkin Muffin in Healthy Adults by Chang Yah Huay, Matric No. UK 12031 was examined and all correction that suggested had been done. This report was submitted to the Jabatan Sains Makanan in partial fulfillment of the requirements for the degree of Bachelor of Food Sciences (Food Service and Nutrition), Faculty of Agrotechnology and Food Science, University Malaysia Terengganu.

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DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

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ABSTRACT

Pumpkin is a healthy fruit and contains many nutrients. Pumpkin had also been reported as having anti diabetic function. The aim of this study was to determine the glycemic responses of pumpkin muffin among healthy adults. Twelve subjects (6 males and 6 females), with mean age of 21.75 years and mean BMI of 21.39kg/m^2 were randomly fed with two types of muffins, which were muffin made from 100% wheat flour and muffin made with 20% pumpkin puree and 80% wheat flour. Subjects were fed with meals after a 10 – 12 hours fasting and each test meal contained 50g of available carbohydrate within 15 minutes. Capillary finger-prick blood samples were obtained at 0, 15, 30, 45, 60, 90 and 120 minutes. It was found that there was no significant difference between the blood glucose responses for both types of muffins. For the control muffin, the blood glucose response at 30 minutes was significantly higher compared to the blood glucose responses at 90 minutes and 120 minutes. For the pumpkin muffin, the blood glucose response at 30 min was significantly higher than the blood glucose responses at 0, 90 and 120 minutes. Both muffin samples reached the blood glucose response peak at 30 minutes after ingesting test meals. There was no significant difference in the blood glucose responses between genders for both types of muffins. The incremental area under curve (IAUC) for the pumpkin muffin was 16.01 ± 2.46 , which was significantly lower than that of control muffin, whereby the IAUC was 27.69 ± 1.80 . The glycemic index value for the control muffin was 65.17 ± 9.81 while the glycemic index value for pumpkin muffin was 68.13 ± 10.89 . The paired-sample t-test showed that there was no significant difference for the glycemic index value between the control muffin and pumpkin muffin. The GL value for control muffin was 32.59 and the GL value for pumpkin muffin was 34.07. Both types of muffins were classified under high glycemic index foods.

ABSTRAK

Labu manis merupakan buah-buahan yang sihat dan mengandungi pelbagai nutrien. Labu manis juga dilaporkan mengandungi fungsi antidiabetik. Tujuan kajian ini adalah untuk menentukan tindakbalas glisemik muffin labu di kalangan orang muda yang sihat. 12 subjek (6 lelaki dan 6 perempuan) dengan min usia, 21.75 tahun dan min BMI, 21.39kg/m^2 telah dipilih secara rawak dan diberi 2 jenis muffin untuk dimakan. 2 jenis muffin itu merupakan muffin kawalan (100% tepung) dan muffin labu manis (20% puri labu dan 80% tepung). Subjek diberi makan muffin dalam tempoh 15 minit selepas puasa selama 10 – 12 jam dan setiap muffin mengandungi 50g kandungan karbohidrat. Sampel darah diambil secara cucukan pada jari pada 0, 15, 30, 45, 60, 90 dan 120 minit. . Perbezaan yang signifikan tidak didapati di antara tindakbalas glukos darah untuk 2 jenis muffin. Tindakbalas glukos darah untuk muffin kawalan pada masa 30 adalah lebih tinggi secara signifikan berbanding dengan masa pada 90 minit dan 120 minit. Manakala bagi muffin labu, tindakbalas glukos darah pada 30 minit adalah lebih tinggi secara signifikan berbanding dengan masa pada 15, 90 minit dan 120 minit. Kedua-dua jenis muffin mencapai glukos darah yang paling tinggi pada 30 minit selepas makan makanan kajian ini. Perbezaan yang signifikan tidak dikesan untuk tindakbalas glukos darah di antara jantina yang berbeza bagi kedua-dua jenis muffin. Nilai IAUC untuk muffin labu ialah 16.01 ± 2.46 dan untuk muffin kawalan ialah 27.69 ± 1.80 . Nilai IAUC untuk muffin labu adalah lebih rendah secara signifikan berbanding dengan muffin kawalan. Nilai GI untuk muffin kawalan ialah 65.17 ± 9.81 manakala nilai GI untuk muffin labu ialah 68.13 ± 10.89 . Ujian t berpasangan menunjukkan tiada perbezaan yang signifikan untuk nilai GI di antara muffin kawalan dan muffin labu. Nilai GL untuk muffin kawalan ialah 32.59 dan nilai GL untuk muffin labu ialah 34.07. Kedua-dua jenis muffin adalah terkandung dalam golongan makanan yang mempunyai GI yang tinggi.