

DETERMINATION OF GUMGAIN RESPONSES OF  
DIFFERENT DOSES OF GUMMUCIL IN HEALTHY ADULTS

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Determination of glyemic responses of pumpkin doughnut in healthy adults / Nurul Ashikin Amir Khairul Anuar.

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Lihat Seb...

DETERMINATION OF GLYCEMIC RESPONSES OF PUMPKIN DOUGHNUT IN  
HEALTHY ADULTS

By  
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Research Report submitted in partial requirement of  
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FAKULTI AGROTEKNOLOGI DAN SAINS MAKANAN  
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**PENGAKUAN DAN PENGESAHAN LAPORAN  
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

*Determination of glycaemic responses of pumpkin doughnut in  
healthy adults*

oleh *Nurul Ashikin bt. Amir Khairul Anuar*, No.Matrik *UK 12731*

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  
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UNIVERSITI MALAYSIA TERENGGANU**

**PENGAUKUAN DAN PENGESAHAN LAPORAN  
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk Determination of Glycemic Responses of Pumpkin Doughnut in Healthy Adults oleh Nurul Ashikin binti Amir Khairul Anuar, No. Matrik UK12731 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Makanan sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sarjana Muda Sains Makanan (Perkhidmatan Makanan dan Pemakanan), Fakulti Agroteknologi dan Sains Makanan, Universiti 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

The objective of this study was to determine the blood glucose responses and glycemic index of pumpkin doughnut. Incorporation of 50% pumpkin in doughnut formulation had increased the moisture, ash, and crude fat content, and decreased the carbohydrate content. The study subjects consisted of 14 healthy subjects (7 male and 7 female; mean age  $23.21 \pm 1.53$  years, mean body mass index,  $20.91 \pm 1.27$  kg/m<sup>2</sup>), were randomly ingested with 2 test meals, namely, control doughnut and pumpkin doughnut and also glucose solution (reference food) on separate days. The entire test involved was done in replication for 2 times. Subjects were fed with the test meals after 10-12 hours overnight fasting. Each meal contained 50g available carbohydrate whereby 104 g of control doughnut and 119.7 g of pumpkin doughnut have to be consumed by each subjects. Capillary finger-prick blood samples for glucose analysis were obtained at 0, 15, 30, 45, 60, 90 and 120 minute. Result shows that the peak blood glucose levels were observed at the time of 45 minutes for all the test meals. Glucose solution gave the highest value of blood glucose level ( $6.85 \pm 1.34$ ), followed by control doughnut ( $5.61 \pm 1.03$ ) and pumpkin doughnut ( $5.31 \pm 1.14$ ). Female showed a higher fasting blood glucose response compared to male. It was found that there was no significant difference ( $p > 0.05$ ) in the blood glucose response between the genders for both test meals. The IAUC of glucose was highest ( $137.52 \pm 11.44$ ), followed by control doughnut ( $95.99 \pm 7.50$ ) and pumpkin doughnut ( $79.24 \pm 9.03$ ). The GI of control doughnut and pumpkin doughnut were ( $72.37 \pm 6.87$ ) and ( $65.53 \pm 7.23$ ) respectively. In conclusion, incorporation of 50% pumpkin changed the IAUC significantly, but did not change the GI values as compared to control doughnut.



## ABSTRAK

Tujuan kajian ini dijalankan adalah untuk menentukan paras glukosa darah dan indeks glisemik bagi donut labu. Kajian ini melibatkan 14 subjek yang terdiri daripada 7 lelaki dan 7 perempuan (berumur  $23.21 \pm 1.53$  tahun, indeks jisim tubuh,  $20.91 \pm 1.27$  kg/m<sup>2</sup>) yang sihat akan diminta untuk memakan dua hidangan yang berbeza iaitu donut kawalan dan donut labu serta air glukosa pada hari yang berbeza dengan susunan yang dibuat secara rawak. Kesemua eksperimen tersebut diulang sebanyak dua kali. Setelah berpuasa 10-12 jam sebelum eksperimen dilakukan, subjek akan diambil darah pada jari tangan pada 0 minit sebelum diberi makan iaitu sebanyak 104 g bagi donut kawalan dan 119.7 g bagi donut labu. Darah akan diambil semula iaitu pada 15, 30, 45, 60, 90 dan 120 minit selepas itu. Hasil analisis yang dijalankan menunjukkan nilai tertinggi bagi paras glukosa darah adalah pada masa 45 minit bagi ketiga-tiga ujian dan air glukosa memberikan paras glukosa yang tertinggi iaitu ( $6.85 \pm 1.34$ ), diikuti oleh donut kawalan ( $5.61 \pm 1.03$ ) dan donut labu ( $5.31 \pm 1.14$ ). Perempuan mempunyai paras glukosa pada permulaan yang lebih tinggi tetapi paras glukosa puncak yang lebih rendah berbanding lelaki. Tiada nilai signifikan ( $p > 0.05$ ) yang didapati melalui kedua-dua ujian perbandingan antara jantina. Nilai IAUC adalah paling tinggi pada air glukosa ( $137.52 \pm 11.44$ ), diikuti oleh donut kawalan ( $95.99 \pm 7.50$ ) dan donut labu ( $79.24 \pm 9.03$ ). Indeks glisemik bagi donut kawalan adalah ( $72.37 \pm 6.87$ ) dan indeks glisemik bagi donut labu adalah ( $65.53 \pm 7.23$ ). Kesimpulannya, penambahan 50% labu dalam formulasi donut telah mengubah IAUC secara signifikan tetapi tidak pada nilai indeks glisemik jika dibandingkan dengan donut kawalan.