

EFFECT OF COLD HOLDING ON THE GLYCEMIC RESPONSES OF  
SEEDED BUMBAY (*Cucurbita maxima*)  
IN HEALTHY ADULTS

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**EFFECT OF COLD HOLDING ON THE GLYCEMIC RESPONSES OF  
STEAMED PUMPKIN (*Cucurbita maxima*) IN HEALTHY ADULTS**

**By  
Noraini Binti Mohd Fauzi**

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

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FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE  
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PENGAKUAN DAN PENGESAHAN LAPORAN  
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*Effect of cold holding on the glycaemic responses of steamed  
pumpkin (cucurbita maxima) in healthy adults*

oleh *Noraini bt. Mohd Fauzi*....., No.Matrik *UK12027*

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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## 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 investigate the effect of cold storage on the glycemic responses of steamed pumpkin in healthy adults. Two steamed pumpkin meals containing 50 g of available carbohydrates were fed to 13 subjects (6 men and 7 women), with normal insulin sensitivity. The first test meal for hot holding steamed pumpkin was served immediately to the subjects after steaming, while the other test meal was refrigerated for three (3) days after steaming prior to consumption by the subjects. All the subjects had the peak blood glucose levels at time 45 minutes for the reference food (glucose), and at time 30 minutes for both test meals. Overall, the male subject had higher blood glucose responses than female subject. However, there was no significant difference in the blood glucose response between genders on hot test meal. But, the difference was significant between gender on the cold test meal at postprandial time intervals of 30 and 45 minutes. The mean IAUC of cold holding steamed pumpkin ( $125.33 \pm 17.16$  mmol.min/L) was significantly lower than that of hot holding steamed pumpkin ( $254.61 \pm 25.29$  mmol.min/L). It was found that the glycemic index of cold holding and hot holding steamed pumpkin was ( $42.47 \pm 6.14$ ) and ( $57.89 \pm 8.55$ ), respectively. However, there was no significant difference in the glycemic index values of both pumpkin samples at a 95% confidence level. The study found that cold holding of steamed pumpkin had resulted in significantly lower incremental area under the curve (IAUC) as compared to hot holding steamed pumpkin ( $p < 0.05$ ). However, their glycemic index were not significantly different.



## ABSTRAK

Tujuan kajian ini adalah untuk mengetahui samaada tindak balas glisemik pada labu kukus dikalangan dewasa sihat dipengaruhi oleh keadaan penyimpanan yang sejuk. Dua hidangan labu kukus yang mengandungi 50 g karbohidrat tersedia diberikan kepada 13 orang subjek (6 lelaki dewasa dan 7 perempuan dewasa), dengan sentiviti terhadap insulin yang normal. Bagi hidangan yang panas, ia dihidangkan terus kepada subjek selepas dikukus. Hidangan yang sejuk pula, disimpan terlebih dahulu di dalam peti sejuk selama tiga (3) hari selepas dikukus sebelum dihidangkan kepada subjek. Secara keseluruhannya, kesemua subjek mencapai nilai puncak paras glukosa dalam darah pada minit ke 45 bagi makanan rujukan (minuman glukos), dan pada minit ke 30 bagi kedua-dua hidangan. Keseluruhannya juga, subjek lelaki mempunyai tidak balas glukosa dalam darah yang lebih tinggi daripada perempuan. Walaubagaimanapun, tiada perbezaan yang bermakna pada tidak balas glukosa dalam darah di antara jantina bagi hidangan yang panas. Tetapi, terdapat perbezaan yang bermakna di antara jantina bagi hidangan yang sejuk pada minit ke 30 dan 45.

Labu kukus yang dihidangkan sejuk ( $125.33 \pm 17.16$  mmol.min/L) menunjukkan perbezaan yang bermakna, dimana ia merendahkan paras glukosa dalam darah selepas makan dan juga nilai tokokan kawasan di bawah lengkung (IAUC) sebagai perbandingan dengan labu kukus yang dihidangkan panas ( $254.61 \pm 25.29$  mmol.min/L). Didapati indek glisemik bagi labu kukus yang di hidangkan sejuk ialah ( $42.47 \pm 6.14$ ) dan panas ialah ( $57.89 \pm 8.55$ ). Walaubagaimanapun, tiada perbezaan yang bermakna pada indek glisemik pada kedua-dua hidangan pada paras keyakinan 95%. Keputusan daripada kajian ini, didapati bahawa nilai tokokan kawasan di bawah lengkung (IAUC) labu kukus yang dihidangkan sejuk adalah lebih rendah daripada labu kukus yang dihidangkan panas ( $p < 0.05$ ). Walaubagaimanapun, tiada perbezaan yang bermakna pada nilai glisemik indek bagi kedua-duanya.

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