The Effect of Yellow Pumpkin Cookies (Cucurbita Moschata) on the Level of Two Hour Post-prandial Blood Glucose.pdf

Universitas Ngudi Waluyo

Document Details

Submission ID
trn:oid:::3618:129617729

Submission Date
Mar 2, 2026, 11:50 AM GMT+7

Download Date
Mar 2, 2026, 12:04 PM GMT+7

File Name
The Effect of Yellow Pumpkin Cookies (Cucurbita Moschata) on the Level of Two Hour Post-prand....pdf

File Size
799.6 KB

5 Pages

2,398 Words

12,586 Characters

19% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

Filtered from the Report

- Bibliography
- Quoted Text
- Cited Text
- Small Matches (less than 10 words)

Match Groups

20 Not Cited or Quoted 19%
Matches with neither in-text citation nor quotation marks

0 Missing Quotations 0%
Matches that are still very similar to source material

0 Missing Citation 0%
Matches that have quotation marks, but no in-text citation

0 Cited and Quoted 0%
Matches with in-text citation present, but no quotation marks

Top Sources

14% Internet sources
13% Publications
0% Submitted works (Student Papers)

Integrity Flags

0 Integrity Flags for Review

No suspicious text manipulations found.

Our system's algorithms look deeply at a document for any inconsistencies that would set it apart from a normal submission. If we notice something strange, we flag it for you to review.

A Flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.

Match Groups

- **20** Not Cited or Quoted 19%
  Matches with neither in-text citation nor quotation marks
- **0** Missing Quotations 0%
  Matches that are still very similar to source material
- **0** Missing Citation 0%
  Matches that have quotation marks, but no in-text citation
- **0** Cited and Quoted 0%
  Matches with in-text citation present, but no quotation marks

Top Sources

14% Internet sources
13% Publications
0% Submitted works (Student Papers)

Top Sources

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

1	Publication	
Lyudmila Cheldieva, Zhanna Vlasova, Victoria Gasieva, Emma Dzodzieva, Georgy ...		4%
2	Publication	
Wilyus, Hamdan Maruli Siregar, Mikha Rosio Hutagaol. "Pollinating insects in hon...		3%
3	Internet	
www.researchgate.net		3%
4	Internet	
repository.pnb.ac.id		2%
5	Internet	
eprints.unram.ac.id		1%
6	Internet	
repository.nusamandiri.ac.id		1%
7	Publication	
Gurid Pramintarto Eko Mulyo, Zidnie Silmi Kaffah, Mira Mutiyani, Angreni Ayuhas...		1%
8	Internet	
phcogj.com		1%
9	Internet	
www.coursehero.com		1%
10	Internet	
journals.lww.com		<1%

11 Publication

Harshad Deshpande, Manjusha Barge, Vaijanath Raibhole, Sameer Bhosale. "Infl... <1%

12 Internet

www.jsnm.org <1%

AIP Conference Proceedings

RESEARCH ARTICLE | MAY 16 2023

The effect of yellow pumpkin cookies (Cucurbita moschata) on the levels of two hour post-prandial blood glucose

Riva Mustika Anugrah ✉; Dyah Kartika Wening; Sugeng Maryanto; ... et. al

AIP Conference Proceedings 2683, 040027 (2023)
https://doi.org/10.1063/5.0127037

The Effect of Yellow Pumpkin Cookies (Cucurbita Moschata) on the Levels of Two Hour Post-prandial Blood Glucose

Riva Mustika Anugrah[a)], Dyah Kartika Wening[b)], Sugeng Maryanto[c)], Galeh Septiar Pontang[d)]

Department of Nutrition Universitas Ngudi Waluyo, Diponegoro Street No 186, Ungaran, Semarang, Indonesia

[a)]Corresponding author: rivamustika86@gmail.com; [b)]dyahkartikawening19@gmail.com
[c)]sugengmaryanto99@gmail.com; [d)]pontang.gs@gmail.com

Abstract. *Yellow pumpkin* is a local food that contains high fibre but low energy. Cookies are generally made from wheat flour. Wheat flour can be substituted with yellow pumpkin flour to make cookies. The purpose of this research was to compare the yellow pumpkin and mocaf flour cookies with wheat flour cookies on the level of two-hour post-prandial blood glucose—experimental studies with randomized pre-post control group design. The subjects are twenty healthy people. The treatment group received 40 grams of yellow pumpkin cookies with mocaf flour, and the control group received yellow pumpkin cookies with wheat flour. Data were collected by blood analysis using *Easy Touch* glucose meters; the paired t-test analyzed data. Before treatment, the fasting glucose levels were respectively 86.9± 9.44 mg/dl in the control group and 93.09±7.6 mg/dl in the treatment group. After treatment, the two-hour post-prandial blood glucose levels were 97.5 ± 11.51mg/dl in the control group and 93.27± 10.3 mg/dl in the treatment group. There was a significant effect of yellow pumpkin cookies with mocaf flour on two-hour post-prandial blood glucose (p= 0.001). The treatment of yellow pumpkin cookies with mocaf flour has longer to increase two hours post-prandial blood glucose.

INTRODUCTION

Pumpkin is one of the great agricultural commodity products in Indonesia. Pumpkin is a type of vegetable that consists of two types, namely chayote and yellow pumpkin. The number of pumpkin productions in 2014 reached 523,063 tons/year in Indonesia and specifically on Java Island [1]. Pumpkin (*Cucurbita moschata*) is a local food that has scientific evidence able to control blood glucose. Some research in diabetic rats showed that yellow pumpkin extract (Cucurbita moschata) provides a hypoglycemic effect and acts as an antidiabetic. Yellow pumpkin is a source of good nutrients such as carotene, fibre, and low energy. Total fibre on pumpkin flour in research previously 14.81- 35.32% [3].

Obesity is a condition of the accumulation of excess fat in the body. Obesity occurs because energy intake is higher than energy expended [4]. Currently, obesity has become a nutritional problem in developing countries, including Indonesia. In Indonesia, obesity has increased every year. Based on Riskesdas in 2007, 2010, and 2013, there was an increase in the prevalence of obesity, respectively, in 2007 at 19.1%, in 2010 as many as 21.8%, and in 2013 as many as 26.3% [5].

A person with obesity needs diet and physical activity to lose weight. Obese people with moderate physical activity are recommended to do a low-energy diet of 1500 Cal/day [6]. Assuming the need for a snack/interlude is 150 Cal/day, 20.62 grams of carbohydrates, 7.5 grams of protein, 4.16 grams of fat and 2.5-4 grams of fibre [7]. Many people today need healthy food interludes and can lose or maintain their weight; it is necessary to modify snacks/interluded that are low in calories, low on the glycemic index, and high in fibre. Healthy snacks contain low energy and should also contain dietary fibre, protein, antioxidants, various vitamins, and minerals that are important for health [8].

The 6th International Conference on Energy, Environment, Epidemiology and Information System (ICENIS) 2021
AIP Conf. Proc. 2683, 040027-1–040027-4; https://doi.org/10.1063/5.0127037
Published by AIP Publishing. 978-0-7354-4517-8/$30.00

Along with the current development, public knowledge about nutrition and health is also increasing. People are more able to choose what types of food are healthy to eat and contain complete nutrients. However, in addition to the nutritional content in food, another factor that needs to be considered is the food's glycemic index (GI). Glycemic Index (GI) is a value that indicates the ability of food containing carbohydrates to increase blood glucose levels [9].

One of the local food ingredients that contain low GI and complete nutrients and antioxidants is yellow Pumpkin (Cucurbita moschata). Previous research showed that the energy content in yellow pumpkin cookies with mocaf flour was 91.94 kcal. At the same time, it was 8.7 g in every 40 grams for fibre, while pumpkin cookies with wheat flour contain 117.54 kcal of energy, 0.095 g of protein, 8.17 g of fat, and 10.03 g of carbohydrates and 4.2 g of fibre [10].

Components of bioactive compounds in yellow Pumpkins such as beta-carotene, flavonoids, vitamin C, and vitamin E can inhibit free radical activity in conditions of oxidative stress caused by hyperglycemia [11]. Another study conducted in 2017 showed that 100 grams of pumpkin powder contain 9.51% fibre, total carotene is 2147.2 ppm, and has potent antioxidant activity [12]. The energy and fibre content in pumpkin cookies can affect the levels of two-hour post-prandial blood glucose. This study aimed to determine how the effect of giving pumpkin cookies with mocaf flour and pumpkin cookies with wheat flour on the levels of two-hour post-prandial blood glucose.

METHOD

Cookies were developed from two formulations: Formulation 1 (F1), 1: 2 ratio of yellow pumpkin flour to mocaf flour, and Formulation 2 (F2), 1: 2 ratio of yellow pumpkin flour to wheat flour. Margarine and refined sugar were mixed for 10 mins. The egg yolk was then added and mixed until homogenous. Respective flours according to ratio were added in with corn starch, milk powder, baking powder, cinnamon, and oatmeal. Ground fried cashews were then added, and the dough was kneaded until smooth. The dough was portioned of 5 g and roasted at 140°C for 10 mins until cooked.

Experimental studies with randomized pre-post control group design. The subjects are twenty healthy people. Subjects fasted for 8-10 hours and then checked for fasting blood glucose levels, the treatment group received 40 grams of yellow pumpkin cookies with mocaf flour, and the control group received yellow pumpkin cookies with wheat flour. After two hours of being given pumpkin cookies, two of our post-prandial blood glucose levels were taken. All statistical analysis was performed using SPSS 16 computer program from Windows. The results were expressed as mean±SD. Statistical analysis was performed by paired t-test. A p-value of <0.05 was considered statistically significant. The request ethical clearance has been reviewed and approved by the Faculty of Public Health Semarang State University with certificate number 171/KEPK/EC/2020.

RESULT AND DISCUSSION

Subjects in this study were females with an age range of 19-21 years with normal nutritional status. Women's blood glucose levels tend to be higher than men's because women have a higher body fat composition than men, making them more prone to obesity [13]. The means age in the control group and the treatment group was almost the same are namely twenty. At the same time, the BMI is not much different and is in the normal value. The characteristic of the subjects is described in Table 1.

TABEL 1. Characteristic of the Subjects,

Charateristic	Treathment group (n=10) Means ±SD	Control group(n=10) Means ±SD	P*
Age (year)	20,04±1,08	20,7±1,12	0,112
BMI (kg/m2)	20,40±0,30	21,47±1,21	0,146

*Independent t test

The result showed fasting glucose levels before treatment were respectively 86.9± 9.44 mg/dl in the control group and 93.09±7.6 mg/dl in the treatment group. The two hour post-prandial blood glucose levels after treatment were respectively 97.5 ±11.51mg/dl in the control group and 93.27± 10.3 mg/dl in the treatment group.

TABLE 2. Effect of Yellow Pumpkin Cookies (Cucurbita Moschata) on the Levels of Two-hour post-Prandial blood Glucose.

	Treatment group (n=10) Means ±SD	Control group(n=10) Means ±SD
Fasting glucose (mg/dl)	93.09±7.6	86.9± 9.44
Pospandrial (mg/dl)	93.27± 10.3	97.5 ±11.5

TABLE 2. Effect of Yellow Pumpkin Cookies (Cucurbita Moschata) on the Levels of Two hour post-Prandial blood Glucose (continued)

	Treatment group (n=10) Means ±SD	**Control group(n=10) Means ±SD**
Δ	0.18±2.7	10.6±2.06
p	0.599	0.001

*Paired t test

The effect of pumpkin cookies with wheat flour on post-prandial blood glucose levels showed that pumpkin cookies with wheat flour could significantly increase post-prandial blood glucose levels; this could be due to the lower fibre content in pumpkin cookies with wheat flour.

Diets containing lots of fibre cause delays in the absorption of food in the intestines, including delays in carbohydrate absorption, so blood glucose levels decrease. The mechanism of fibre in blood sugar metabolism is related to the function and characteristics of the fibre. The fibre in the body can absorb fluids and then form a gel in the stomach. This gel can slow down the process of gastric emptying and absorption of nutrients. The gel can also slow down the peristaltic motion of nutrients from the small intestine wall to the absorption area, resulting in a decrease in blood sugar levels [15]. Blood glucose levels are proportional to the amount of insulin needed so that if the increase in blood glucose levels can be suppressed, insulin production will decrease. High fibre can also improve blood sugar levels, which is related to the speed of absorption of food (carbohydrates) into the bloodstream, known as the glycemic index (GI) [14].

CONCLUSION

Before treatment, the fasting glucose levels were 86.9 ± 9.44 mg/dl in the control group and 93.09±7.6 mg/dl in the treatment group. After treatment, the two-hour post-prandial blood glucose levels were 97.5 ± 11.51mg/dl in the control group and 93.27± 10.3 mg/dl in the treatment group. There was a significant effect of yellow pumpkin cookies with mocaf flour on two-hour post-prandial blood glucose (p = 0.001). The treatment of yellow pumpkin cookies with mocaf flour has longer to increase two hours post-prandial blood glucose than yellow pumpkin cookies with wheat flour. The fibre content of yellow pumpkin cookies with mocaf flour is higher than pumpkin cookies with wheat flour.

REFERENCES

1. Statistics Indonesia. *Statistic of seasonal vegetebles and fruits plants*,(2012),Retrieved from BadanPusatStatistik website: https://www.bps.go.id/publication/download.html?nrbvfeve
2. J. Dini, S. Budi, A.Faisal, M. Tjahja,*Nutrient content, antioxidant activity and sensory characteristics of functional powder from pumpkin* [Cucurbita moschata] and Tempeh. J. GiziPangan, **12**(2):109-116 (2017) DOI: 10.25182/jgp.2017.12.2.109.116
3. N. Hanna, S. Budi, R. Katrin. *The potential of pumpkin (cucurbita moschata) as a high-fiber food in liquid form.* Indonesia Journal of Human Nutrition, (2020)DOI: *http://dx.doi.org/10.21776/ub.ijhn.2020.007.01.6*
4. Indonesian Ministry of Health, *Diabetes situation and analysis*.South Jakarta: Data and Information Center, (2014)
5. Basic Health Research, Ministry of Health Republic of Indonesia, Health Research and Development Agency. Retrieved from the Ministry of Health Republic of Indonesia: http://kesmas.kemkes.go.id/assets/upload/dir_519d41d8cd98f00/files/Hasil-riskesdas-2018_1274. pdf2
6. L. K. Lysen,D. A. Israel, *Nutrition in Weight Management*, in L. K. Mahanand J. L. Raymond (Eds),*Krause's Food and the Nutrtion Care Process*, 2nd ed., 383-404, USA: Elsevier (2017)
7. Suharyati, *Menyusun diet bebagai penyakit*,Jakarta: Faculty of Medicine, University of Indonesia(2015)
8. M.Christian,*Processing banana bars with inulin as an alternative to emergency food*,Jurusan Teknologi Pangan dan Gizi, Fakultas Teknologi Pertanian, Institut Pertanian Bogor (Skripsi), (2011)

9. A. J. Sidik, Differences in glycemic index and glycemic load two variants of biscuits.Skripsi Program Studi Pendidikan Dokter Fakultas Kedokteran dan Ilmu kesehatan Universitas Islam Negeri Syarif Hidayatullah Jakarta (2014)
10. A. R. Mustika, W. D. Kartika, *Formulation of yellow pumpkin cookies with mocaf (modified cassava flour) flour addition as a snack for the obese community*, Food Research,**4**, 109 – 113 (2020) DOI: https://doi.org/10.26656/fr.2017.4(S3).S02
11. R. Fathonah *et al*.***P****umpkin (curcubitamoschatadruch.) for decreased fasting blood glucose in diabetic model rats*, Global Medical and Health Communication, **2**, 1: 27 – 33 (2014)
12. D.Junita. *Nutritional components, antioxidant activity and sensory characteristics of pumpkin and wrought pumpkin functional powder*,Jurnal Gizi Pangan (2019)
13. E. Soviana, D. Maenasari. *Fiber intake, glicaemix load, blood glucose levels on type 2 diabetes mellytus*, Jurnal Kesehatan, **12**(2019)
14. S.Aeni, D. E.Puspaningtyas, N. D. Putriningtyas. *Effectivity of peanut milk to weight lose and blood glucose levels of overweight adolescent women*, Sport and Nutrition Journal, **1,**33 – 39 (2019)
15. Witasari, *Relationship level knowledge, carbohydrate intake and fiber with control blood glucose levels in patients type 2 diabetes mellitus*, Journal Science and Technology Research, **10**(2), (2019)