International Journal Of Health Medicine and Current Research
E - ISSN : 2528 - 3189
P - ISSN : 2528 - 4398

International Journal of Health Medicine and Current Research
Vol. 1, Issue 02, pp.125-130, Desember, 2016

DOI:
10.22301/IJHMCR.2528-3189.125

Article can be accessed online on:
http://www.ijhmcr.com

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF HEALTH MEDICINE AND CURRENT RESEARCH

INFLUENCE OF CONSUMING LILIN VEGETABLE (*Setaria Palmifolia*) TO REDUCE TOTAL CHOLESTEROL AT HIPERKOLESTEROLEMIA SUFFERER

Dolfi Buluran [1], Arend L. Mapanawang [2], Florensiana Runtunuwu [3], Wis Ningsi Bahaholo [4]

Nursing Department of STIKES Halmahera, Yayasan Medika Mandiri

ARTICLE INFO

Article History:
Received 21th September, 2016
Received in revised form
20th October, 2016
Accepted 12th November, 2016
Published online 30th December, 2016

Key words:
Cholesterol, Lilin Vegetable

Correspondence to Author:
Dolfi Buluran
STIKES Halmahera, Yayasan Medika Mandiri Halmahera

E-mail:
dolfibuluran@yahoo.com

ABSTRACT

Cholesterol was fat that mostly formed by the body itself, mainly inside the liver that called endogen, and about 30% was obtained from foods that called exogenous cholesterol. Lilin vegetable plant (*setaria palmifolia*) or egg cana (*Saccharum Edule Hassk*) or called terubuk, and egg cana was kind of vegetable which seemed like sugar cane. Part of the plant that used as vegetable was it's topping. This research was aimed to investigate the Influence of Consuming Lilin Vegetable (*Setaria palmifolia*).

This research was "*Queasy experiment design with pre-post test control group"*, with number of sample 10 respondents in Toliwang Village. Sampling was done by *non probability sampling* kind of *consecutive sampling.* Statistical Test done by using T-test with significant value α=0.05. The comparison between T-table and T-counting was done by using two sides test and got significant value α=0.02 for experiment group, and 0.36 for control group.

From the research result, it could be concluded that by consuming lilin vegetable could reduce cholesterol. This could be seen from the average of cholesterol degree at experiment group before and after consuming lilin vegetable, where their cholesterol got down with the average difference of 47 mg/dl. This was because lilin vegetable contained some compounds such as *Tricosane*, Z-12-*Pentacosane*, and *Nonacosane* which used to reduce cholesterol degree.

Citation: Dolfi Buluran[1], Arend L. Mapanawang[2], Florensiana Runtunuwu[3], Wis Ningsi Bahaholo[4], 2016 "*Influence Of Consuming Lilin Vegetable (Setaria Palmifolia) To Reduce Total Cholesterol At Hiperkolesterolemia Sufferer*", *International Journal of Health Medicine and Current Research*, 1, (02), 125-130.

INTRODUCTION

Cardiovascular disease was the biggest factor that caused death in the world. Based on the report of WHO (*World Health Organization*, 2011*)* from 57 billion death of the world's population, 17,3 billion (31%) deaths were caused by cardiovascular disease, especially heart attack (7,3 billion) and stroke (6,2%). One of the factors of main risk of cardiovascular disease was high cholesterol (Bangun, 2003, Fatmah, 2010 and WHO, 2011).

Cholesterol was complex fat in each cell in the body. Cholesterol was functioned as first material to form bile, cell wall, vitamin, and certain hormons such as sex and others. (Gondosari, 2010).

Cholesterol source was found from foods such as innards, egg yolk, shrimp, shells, and fatted meat (Hesti Widuri & Dedi M. Pamungkas, 2013). High degree of total cholesterol would form atherosclerosis which could cause hypertension and embolism of brain, heart, and leg. Brain embolism caused cerebrovascular or diseases of brain vessel such as stroke. Embolism of heart could cause cardiovascular diseases such as coronary, whereas embolism of leg caused diseases of periphery blood vessel. This condition was often happened at legs that could cause sharp, cramps, asleep, and gangrene (Garnadi, 2012).

There were many kinds of medicine which was produced by pharmacy industries, but it was reported that there was side effect of using the medicine for long time so the society used herbal to care disease of treatment that was cheaper and saver, such as traditional treatment with metabolic problem. (Kasper *et al.*, 2005). Therefore, alternative herbal material, needed to be improved. Nowadays, people had been most interested in orally treatment method by consuming functional foods and drinks.

Lilin vegetable plant (*Setaria palmifolia*) or egg cane (*Saccharum Edule Hassk*) or called terubuk, and egg cane was kind of vegetable which was similar with sugar cane. Part of plant that used as vegetable was it's top. However, it's flower was also used as vegetable. It's top looked like being peculiar because when it grew to be mature, the top was swollen. As it peeled, the egg cane contained something liked nail with colour of white to yellowness, liked a horde of fish eggs. Therefore, the plant called egg (fish) cane.

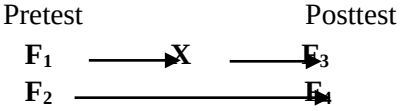
According to the result of laboratory test, there were some compounds that was useful for human body such as: *Heinecosane* (1,95%), *Tricosane* (19,05%), *Tetracosane* (2,03%), *Decasa* (8,54%), Z-12-*Pentacosane*(6,04%) *Nonadecasane* (7,31%), *Nonadecyltrifluoroacetate* (30,76%), *Celidoniol Deoxy* (2,51%), *Triacontyl acetate* (12,26%), *Nonacosane* (6,74%), (Laboratory of Health LIPI DKI Jakarta, 2016).

METHODS

This research was qualitative research with design of *Queasy Experiment Design With Pre - Post Test Control Group* (Notoadmodjo, 2007). This research was aimed to analyze the influence of lilin vegetable to the reduce of total cholesterol degree at the hypercholesterolemia sufferers in Toliwang Village. The cholesterol measurement was done before and after the intervention. While the respondents of control group didn't consume lilin vegetable.

After that, it was done one time measurement in the beginning (*Pre test*) for both groups, then it was done the treatment for the first group (*experiment group*) and there was no treatment for the second group (*control group*). Next, the second measurement (*post test*) was done for both groups. This was aimed to observe the comparison at the group with treatment (*experiment group*) and group without treatment (*control group*).

The research design was explained as follow:



Explanation :

F_1 = Measurement of cholesterol degree, Pre-Test before consuming lilin vegetable at intervention group (experiment)

F_2 = Measurement of cholesterol degree, Pre-Test at control group

X = Intervention of consuming lilin vegetable

F_3 = Measurement of cholesterol degree after consuming lilin vegetable at intervention group (experiment)

F_4 = Measurement result of cholesterol degree at control group

After the measurement at all respondents was done, the researcher would do data analysis by using computer in some stages. Those stages are ***Editing*** that was done to check each data, related with the existence of error and data completeness in order that all data became valid to be analyzed; ***Coding*** that was done to give code at each information that had been collected at each data, so it made light of analyzing the data. The data of letters were changed into numeral so that it made

to be easy in analyzing the data and quicken the data entry process. This was done by giving codes (1) for intervention group and (2) for control group. The data collected then was entered in the computer in order to be continued with data analysis by using *Statistical Programme For Social Science* (SPSS 16.0)

Data analysis that was used in this research was univariat analysis, that was analysis method by describing or explaining the collected data factually without making any conclusion that happened in general and generalization, and bivariat analysis by using T-test (*Paired Sampel T-Test*) with significant degree $\alpha < 0{,}05$.

SAMPLE

Sampling in this research was done with saturated sample where all population of hiperkolesterol sufferers in Toliwang Village, West Kao Sub district, North Halmahera Regency to the number of 10. From 10 persons, it divided into two groups, 5 persons who were consuming lilin vegetable as intervention group and 5 persons who weren't consuming lilin vegetable as control group.

a. Inclusion Criteria

1. Hyper cholesterol sufferer at the age of 20-65 years old
2. Hyper cholesterol sufferer with cholesterol degree >200 mg/dl
3. Hyper cholesterol sufferer who could be asked to have good communication
4. Hyper cholesterol sufferer who weren't consuming anti cholesterol medicine
5. Hyper cholesterol sufferer who were willing to consume lilin vegetable
6. Hyper cholesterol sufferer who were willing to sign the agreement sheet (*Informed Consent*).

b. Exclusion Criteria

1. Hyper cholesterol sufferer out of Toliwang Village
2. Hyper cholesterol sufferer who couldn't be asked to get have good communication
3. Hyper cholesterol sufferer who were consuming anti cholesterol medicine
4. Hyper cholesterol sufferer who weren't willing to consume lilin vegetable
5. Hyper cholesterol sufferer who didn't want to sign the agreement sheet (*Informed Consent*)

INTERVENTION PROCEDURE

a. Intervention Group

1. Researcher assured the sufferers who would be given intervention procedure of cholesterol degree measurement and introduced self to the respondents.
2. Researcher gave explanation to the respondents about the signification, objective, method, benefit of lilin vegetable for the respondent and time of implementation, and procedure of consuming lilin vegetable.
3. Giving opportunity to the respondents to ask questions and gave *informed consent*, asked signatures as agreement proof for the respondents who were willing to include in research activities.

b. Control Group

Respondents at the control group only got health education without consuming lilin vegetable and the checking of cholesterol was done 2X.

RESULTS

The research was conducted on June 2016 during 1 year. The research was done by interview method and check up the cholesterol degree directly with check up tool/instrument and used observation sheet toward 10 respondents, they were pople of Toliwang Village.

The result was in the form of unvariat analysis that was done toward 10 respondents consisted of demography's data: age, gender, education, and profession. Respondents with age of >50 years were 5 respondents (50%), 41 -50 ages were 3 respondents (30%), 20-30 years was 1 respondent (10%), and 31-40 years was 1 respondent (10%). Female respondents were 7 respondents (70%), and male respondents were 3 respondents (30%). Respondents' characteristic with education background of SD were 5 respondents (50%), SMP were 3 respondents (30%) and SMA were 2 respondents (20%). Respondents with proffesion background of housewife (IRT) were 7 respondents (70%), farmer were 3 respondents (30%), and entrepreneur was 1 respondent (10%).

Bivariat analysis was done in order to know the relationship between independent variable (Hypercholesterolemia sufferers) and dependent variable (Reduce of total cholesterol degree) that analyzed by using T-test and using computer with means degree p=0.05.

Table 1. Measurement Result of Cholesterol Degree at the Experiment Group

No.	Kelompok kontrol	
Responden	Pre Test	Post Test
1	219 mg/dL	200 mg/dL
2	225 mg/dL	202 mg/dL
3	206 mg/dL	200 mg/dL
4	218 mg/dL	225 mg/dL
5	210 mg/dL	217 mg/dL

Table 2. Justification of T test at the Experiment Group

Nilai Normal		Hasil pengujian		
α	T tabel	Nilai α	Nilai T hitung	Kesimpulan
0.05	2.776	0.020	3.749	Hasil uji T-test nilai α (0.020) dan nilai T tabel (2.776). Ho ditolak dan Ha diterima

Table 3. Measurement Result of Cholesterol Degree at the Control Group

No.	Kelompok Intervensi	
Responden	Pre Test	Post Test
1	213 mg/dL	117 mg/dL
2	207 mg/dL	162 mg/dL
3	217 mg/dL	185 mg/dL
4	230 mg/dL	198 mg/dL
5	210 mg/dL	180 mg/dL

Table 4. Justification of T Test at Control Group

Nilai Normal		Hasil pengujian		
α	T tabel	Nilai α	Nilai T hitung	Kesimpulan
0.05	2.776	0.361	1.030	Hasil uji T-test nilai α (0.361) < 0.05 dan nilai T hitung (1.030) < nilai T tabel (2.776)

DISCUSSION

Cholesterol was important element that needed to manage chemical process inside the body, but cholesterol in high number could cause the occurrence of atherosclerosis that finally would influence at the coronary heart (Rahayu, 2005). Hypercholesterolemia was a condition of cholesterol number that exceeded from normally limit.

Risk factor that related with degree of total cholesterol was divided into changeable risk and unchangeable risk. Unchangeable risk factor consisted of age, gender, and genetic. While, changeable risk factor consisted of diet, nutrient status, and physical activities. *National Heart Lung And Blood Institute* (2012).

Beside became one of foodstuff, vegetable became very important food element for body and not only as complement, but vegetable was rich of nutrient and could become the important balancing in doing menu diet. The importance of vegetable for human's health had been long time known, because vegetable was cheap source of vitamin and mineral and it could increase the intelligence and body resistance toward diseases attack.

Vegetable of leaf was also contained fiber that was useful to help ingestion. By the completeness of nutrients inside the vegetable, so that, in this modern century there were more and more people choose to stick to meat and just consumed vegetable. (Sutarya, and Grubben,1995 and Anonimus,2003).

In Indonesia, egg cane known with local names such as *tobu bunga* (Simalungun), *sayor lilin* (Menad.), *sayur trubu* (Maluku), *tĕbu tĕlor*, *tubu tĕlor ikan* (Amb.), *bunga tobu* (Lamp.), *tiwu turubus*, *turubus* (Sund.), *tĕbu*

ĕndog (Jw.), *bambiada* (Talaud), *bĕmbiadĕ*(Sangi), *patodo péhawĕrè, pola péra* (Alf.Minah.), *apiö* (Baree), *iwahu tona* (Ser. U.), *wahu usui* (Ser. B.), *uhu yane* (Amahai), *tobu ikan, t. i. oso, tehu iyan, t. oyan* (Hila), *tehuyan uhui* (Har.), *tehu yano, tiapu uno* (Ulias), *tebiyane* (Buru), *dodilibu, idowau, idowaho, didiliutu* (Hal. Utara), *idawaho* (Tern.), *dolawaho* (Tid.).

Based on the source of plant's part taken, terubuk was kind of flower vegetable. Terubuk could be consumed raw (dish of raw vegetables and a spicy sauce), fried, or steamed. Like other vegetables, terubuk was also rich of nutrition and other substances that good for body. Terubuk most contained mineral, mainly calcium and phosphor, beside Vitamin C. (Van den Bergh, 1994)

It was suggested for hypercholesterolemia sufferers to always check up their cholesterol degree routinely in the closest health service and use herbal plants especially lilin vegetable as anti cholesterol medicine.

CONCLUSIONS

In this research it was known that there was significant influence of doing intervention by consuming lilin vegetable at the hypercholesterolemia sufferers. It could be known from the result of SPSS 16.0 analysis, with T-Test, found the value result of $\alpha = 0{,}020$.

Based on the comparison of t counting and T table:

a. If counting statistic (number t output) > Table statistic (T table), so Ho rejected
b. If counting statistic (number t output) < Table statistic (T table), so Ho accepted

Result of T-Test analysis showed value of T counting 3.749 (bigger than value of T table 2.776) with value $\alpha = 0.020$. From the research result, it had got value $\alpha = 0.020$, therefore it had proofed that Ha accepted and Ho rejected (if value $\alpha < 0.05$).

From some compounds above, in fact, there were three compounds that contained in lilin vegetable and used to reduce cholesterol degree, they are: *Tricosane*, Z-12-*Pentacosane*, and *Nonacosane*. The three compounds contained in merunggai leaf, that was useful to reduce cholesterol degree in the blood. (A Dudi Krisnadi, 2015)

ACKNOWLEDGEMENTS

Government of North Maluku province; Government of North Halmahera Regency; Yayasan Medika Mandiri Halmahera; Laboratory of Botany LIPI Bogor, West Java; Laboratory of DKI Jakarta; Laboratory of Pharmaceutical, STIKES Halmahera in North Maluku (Jalan Raya WKO Wosia Tobelo Halmahera Utara).

REFERENCES

1. Murray. R.K., Granner, and Rodwell. *Biokimia Harper*. Jakarta: Kedokteran EGC;2003.
2. Rahayu, T. Kadar Kolesterol Darah Tikus Putih (*Rattus norvegicus* L) setelah Pemberian Cairan *Kombucha* Per-Oral. *Jurnal Penelitian Sains dan Teknologi FKIP UMS*.2005;6(2): 85–100.
3. Price.S.A., M.Lorraine, dan Wilson. *Patofisiologi Konsep Klinis Proses-Proses Penyakit*. Jakarta: edisi 6 Kedokteran EGC;2006.
4. Bull, Eleoner. Kolesterol. Jakarta: Erlangga;2007.
5. Misnadiarly. *Obesitas.* Jakarta:Pustaka Obor Populer; 2007.
6. Riansari, A. Pengaruh Pemberian Ekstrak Daun Salam (*Eugenia polyantha*) terhadap Kadar Kolesterol Tikus Jantan Galur Wistar Hiperlipidemia. Semarang: *Karya Tulis Ilmiah* Fakultas Kedokteran Universitas Diponegoro;2008.
7. Yudhasari, J. D. Pengaruh Pemberian Susu Fermentasi terhadap Kadar Kolesterol dalam Darah Mencit (*Mus musculus* Gazaensis) Galur Swiss Webster. Yogyakarta: *Skripsi* UAJY; 2008.
8. Masrufi, M. M. Pemeriksaan HDL dan LDL Kolesterol sebagai Parameter Penaksiran Resiko Penyakit Jantung Koroner. Surabaya: Fakultas Kedokteran Universitas Airlangga;2009.
9. Almatsier S. Prinsip Dasar Ilmu Gizi. Jakarta: Gramedia Pustaka Utama; 2009.
10. Ariantari, N. P., Yowani, S. C., Swastini, D. A. Uji Aktivitas Penurunan Kolesterol Produk Madu Herbal yang Beredar di Pasaran pada Tikus Putih Diet Lemak Tinggi. *Jurnal Kimia*.2010; 4(1): 15–19.
11. Fatmah. Gizi usia lanjut. Jakarta: Penerbit Erlangga; 2010.
12. Gondosari, A.H. Kolesterol, asam lemak jenuh, dan asam lemak tak jenuh. Dalam:Wijdan FR, editor. The Miracle Of 5 Elements Energy. Depok: E-tera p 43-50; 2010.

13. WHO. 2011. Global atlas on cardiovascular disease prevention and control. Mendis, S., Puska, P., dan Norrving, B. (eds). Geneva. (acessed 20 Apr 2016)\
14. Mumpuni, Yekti. *Cara Jitu Mengatasi Kolesterol*. Yogyakarta: 2011.
15. Soetardjo, Susirah. Gizi usia dewasa in: gizi seimbang dalam daur kehidupan. (Ed). Jakarta: Gramedia Pustaka Utama; 2011.
16. Nurrahmani, Ulfah. *Stop ! Kolesterol Tinggi*. Yogyakarta: Group Relasi Inti Media;2012 .
17. Suiroka, I.P. Penyakit degenaratif. Yogyakarta: Nuha Medika; 2012.
18. Durstine, L.J. *Program Olahraga* : Kolesterol Tinggi. Yogyakarta: PT Citra Aji Parama; 2012.
19. Devaranavadgi, B.B., Aski, B.S., Kashinath, R.T., dan Hundekari, I.A. Effect of cigarette smoking on blood lipids – A Study in Belgaum, Northen Karnataka, India. Global Journal of Medical Research. 2012;12(6):1-3.
20. Garnadi, Yudi. *Hidup Nyaman Dengan Hiperkolesterol*. Jakarta: Agromedia Pustaka; 2012.
21. Riset kesehatan dasar. 2013. www.litbang.depkes.go.id/sites/download/rkd(accessed 19 apr 2016).
22. Hesti Widuri & Pamungkas Dedi, Komponen Gizi & Bahan Makanan Untuk Kesehatan. Yogyakarta: Gosyen Publishing; 2013.
23. Kurniasari, A. N., dan Dian, D.A. Kunci tepat diet sehat. Jogjakarta: Trans Ideal Pusblishing; 2014.p.58-60.p.62-64.
24. Laba Nur Songo. Makalah Kolesterol. 2014.http://labanursongo.blogspot.com.id/2014/03.html (19 Apr 2016).
25. Anggra Putra. Tanda-Tanda Dan Gejala Kolesterol. 2014.http://www.anggaputra.com(accessed 19 Apr 2016).
26. A Dudi Krisnadi.*Kelor super Nutrisi*.2015.http://kelorina.com/ebook.pdf(accessed 19 Apr 2016).
27. Ahmad Muhlisin. 20 Jenis Obat Kolesterol Generik Dan Paten. 2016.http://medisku.com/ph (accessed 12 Apr 2016).
28. Budiyono, W., Candra, A. Perbedaan Kadar Kolesterol Total dan Trigliserida Sebelum dan Setelah Pemberian Sari Daun Cincau Hijau (*Premna oblongifolia* Merr) pada Tikus Dislipidemia. *Journal of Nutrition College.*2(1):118–125.

****