



UNIVERSITAS MUHAMMADIYAH SURAKARTA
FAKULTAS FARMASI

Terakreditasi "A" SK. BAN. PT. No : 029/SK/BAN-PT/Ak-XVI/S/XII/2013
Jl. A. Yani Tromol Pos 1 Pabelan, Kartasura Telp. (0271) 717417 – 719483 Fax. 715448 Surakarta 57102
e-mail : pharmasi@ums.ac.id

Surat Tugas

Nomor : 414/FF/A.3-II/VI/2014

Assalamu'alaikum Wr. Wb.

Yang bertanda tangan di bawah ini Dekan Fakultas Farmasi Universitas Muhammadiyah Surakarta menugaskan kepada :

Nama : Dr. Muhtadi, M.Si
NIP / NIK : 761
Pangkat/Gol : Pembina / IVa
Jabatan : Lektor Kepala
Unit kerja : Fakultas Farmasi UMS

Sebagai pemakalah dalam acara INTERNATIONAL SYMPOSIUM ON MEDICINAL PLANT AND TRADITIONAL MEDICINE dengan judul "ANTIHYPERCHOLESTEROL ACTIVITY OF ETHANOL EXTRACTS OF DURIAN (*Durioa zibethinus* Murr) AND LONGAN (*Euphoria longan* Lamk) FRUIT PEELS ON MALE WHITE RATS WISTAR STRAIN" yang diselenggarakan pada tanggal 4-6 Juni 2014 di Balai Besar Penelitian Tanaman Obat dan Obat Tradisional Tawangmangu, Karanganyar.

Demikian Surat Tugas ini di buat untuk dapat dilaksanakan sebagaimana mestinya.

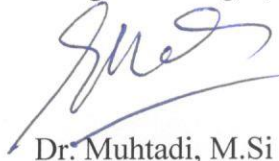
Wassalamu 'alaikum Wr.Wb.

Surakarta, 5 Sya'ban 1435 H

3 Juni 2014 M

Dekan,

Yang diberi tugas,


Dr. Muhtadi, M.Si


Azis Saifudin, SF., Ph.D., Apt

Telah dilaksanakan sebagaimana mestinya

Mengetahui,





No. Urut :

N a m a : Indah Laksmiwati, S.Sos

N I P : 198205232008122005

Jabatan : Ka.Sie Program dan Evaluasi

ANTIHYPERCHOLESTEROL ACTIVITY OF ETHANOL EXTRACTS OF DURIAN (*Durio zibethinus* Murr) AND LONGAN (*Euphoria longan* Lamk) FRUIT PEELS ON MALE WHITE RATS WISTAR STRAIN

**Muhtadi*, Egy Nur Hidayatus Sholikhah, Tanti Azizah, Haryoto,
Andi Suhendi**

Pharmacy Faculty, Universitas Muhammadiyah Surakarta
Jl. A. Yani Tromol Pos I, Pabelan, Kartasura, Surakarta 57102

*E-mail: muhtadi@ums.ac.id

ABSTRACT

Durian (Durio zibethinus Murr) and longan (Euphoria longan Lamk) fruit peels contain flavonoid compounds that might have potential activity as antihypercholesterol. The purpose of this study to determine the antihypercholesterol effect of ethanol extract of durian and longan fruit peels on the white rats Wistar strain. The research method is the pre and post control group design. Forty rats were divided to 8 treatment groups. Group I (negative control) were given CMC-Na 0,5%, group II (positive control) were given Colestiramine 0,8 g/kgBW, group III, IV, V, VI, VII and VIII treated by ethanol extract of durian and longan fruit peels with consecutive doses 125, 250, and 500 mg/kgBW. Before treatment, the rats were given high cholesterol diets and fed diets supplemented with cholesterol during 4 weeks. The composition of high cholesterol diets were cooking oil, quail egg yolk, water, PTU (Propyltiourasil) and fed diets supplemented with cholesterol were margarine, quail egg yolk, standard feed. The treatment of antihypercholesterol testing on the rats conducted for 2 weeks. The result showed that durian and longan fruit peels ethanol extracts have potential antihypercholesterol activity. Percentage decreasing of cholesterol total level of ethanol extract of durian and longan fruit peels with consecutive doses 150, 250, and 500 mg/kgBW were 12.56%, 35.79%, 35.82%, 27.61%, 33.56%, 33,97%, respectively. While Colestiramine 0.8 g/kgBW as a positive control had value decreasing percentage of total cholesterol was 34.20%.

Keywords : Antihypercholesterol, cholesterol total, *Durio zibethinus* Murr., *Euphoria longan* L.





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Muhtadi*, Egy Nur Hidayatus Sholikhah, Tanti Azizah, Haryoto, Andi Suhendi

Faculty of Pharmacy, Universitas Muhammadiyah Surakarta

Jl. Achmad Yani Tromol Pos 1, Pabelan Kartasura, Surakarta, Indonesia. Kode Pos 57102. Email: muhtadi@ums.ac.id

Introduction

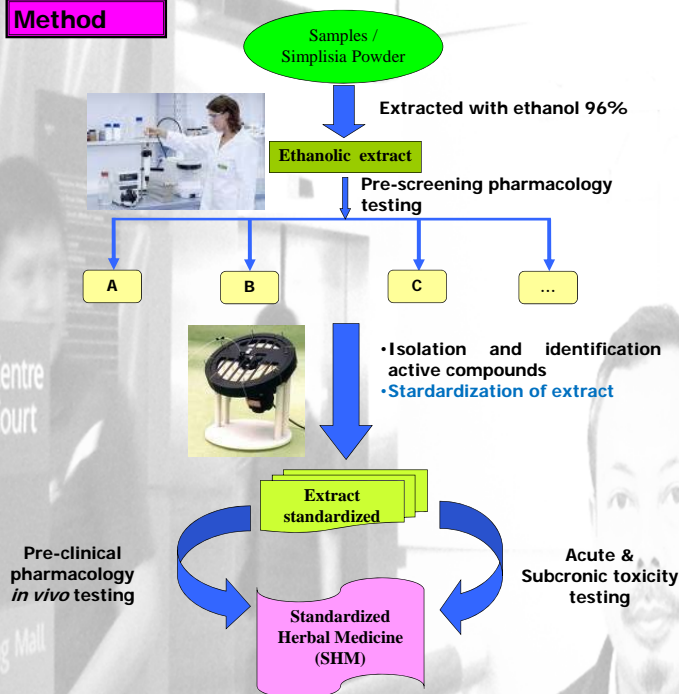


- Nowdays, modern society tends to make lifestyle changed. The selection of foods that tend to be low in fiber and high in fat, smoking and lack of exercise cause blood cholesterol levels can not be controlled, the consequences arising out of various diseases, one of which was hypercholesterolemia (Juheini, 2002).
- Increasing levels of cholesterol in the blood is a major factor associated with atherosclerosis coronary heart disease which can lead to death (Ratnawati and Revelation, 2011) to treat the condition required medication to control blood cholesterol levels.
- Currently, the tendency of people prefer a natural remedy because the herbal medicine drug is safer to use than synthetic drugs (Lin, 2010). This phenomenon is of particular concern among of the researchers.
- Durian is one of the favorite fruit plants grown in Indonesia. Leontowicz et al., (2008) reported that the presence of polyphenols and flavonoids content in durian extract was able to reduce levels of triglycerides and LDL. The ethanolic extract of the bark of durian fruit contains great potential as natural antioxidants with $IC_{50} = 28.83 \text{ mg/mL}$ (Coal, 2011). Santi (2011) stated that the longan fruit peel contains a class of phenolic compounds and saponins. Jaitrong et al. (2006) reported that longan fruit peel contains quercetin and kaempferol were analyzed using HPLC. According to Armida (2011) total phenolic and flavonoid content of longan fruit leather is quite high as well as a potential source of natural antioxidants with $IC_{50} = 9.23 \pm 0.15 \text{ mg / mL}$.
- The presence of antioxidants constituents in a natural substance are capable of inhibiting free radicals cause various diseases. High cholesterol levels are indicators of the presence of free radicals in the body (Jaswal and Baswal, 2009). If the amount of free radicals and antioxidants between the body out of balance then there oxidative stress conditions that required more antioxidants to treat the condition. Vitamins, phenolic acid, flavonols (quercetin, kaempferol, myricetin), isoflavones (genistein, daidzen, glycitein), flavanones (naringenin, eriodictyol, hesperetin), flavones (luteolin, apigenin) are an exogenous antioxidants to cope with oxidative stress conditions (Bouayed and Torsten, 2010).

Objective

This paper will explain about the antihypercholesterolemia activity of durian and longan peels extracts, expected results of this research can be developed into standardized herbal medicine.

Method



Result

Tabel 1. Percentage decreasing of cholesterol levels during 14 days

The treatment groups	cholesterol level (mg/dL)			% Decreasing in cholesterol levels
	initial levels	Pre ^a	Post ^b	
positive control	58,6 ± 4,15	116,8 ± 10,23	77,2 ± 16,02	34,20% ± 10,48
Negative control	61 ± 11,8	145,8 ± 23,40	126,6 ± 32,16	13,44% ± 15,45
Durian peel extract, dose 125 mg/kgBB	52 ± 4,47	107,4 ± 35,09	92,4 ± 21,45	12,36% ± 6,96
Durian peel extract, dose 250 mg/kgBB	57,2 ± 4,14	131,8 ± 12,59	84,2 ± 7,01	35,79% ± 6,63
Durian peel extract, dose 500 mg/kgBB	64,4 ± 13,4	170,2 ± 16,14	109,4 ± 15,79	35,82% ± 5,00
Longan peel extract, dose 125 mg/kgBB	71,8 ± 12,11	168 ± 13,05	121 ± 10	27,61% ± 8,74
Longan peel extract, dose 250 mg/kgBB	65,6 ± 16,37	191,2 ± 39,68	126 ± 19,79	33,56% ± 5,49
Longan peel extract, dose	90 ± 22,07	161,2 ± 7,42	106 ± 11,85	33,97% ± 9,47

- The longan and durian fruit peels extracts can decrease total cholesterol levels but durian peel extract dose of 125 mg / kg was not able lowering cholesterol level.
- Based statistical analyzed, the longan and durian fruit peels extracts with the positive control showed not different significantly ($p > 0.05$), except durian extract dose of 125 mg / kg ($p = 0.009$).
- Durian peel extract dose 500 mg/Kg BW shows the most active as antihypercholesterol with the value of percentage decreasing in cholesterol total is 35,82%.

Conclusion

- The ethanol extract of longan and durian fruit peels had potential antihypercholesterol activities.
- Percentage reduction in total cholesterol levels of ethanol extract of durian and longan fruit peels at doses of 125, 250 and 500mg/kg, respectively, 12.56%, 35.79%, 35.82%, 27.61%, 33, 56%, and 33.97%.



CERTIFICATE



This is to certify that

MUHTADI

has participated in

The 46th Symposium of National Working Group of Indonesia Medicinal Plant
International Symposium on Medicinal Plant and Traditional Medicine
Theme: Indonesia Traditional Medicine for Human Welfare
4 - 6 June 2014, Tawangmangu, Indonesia, as:

POSTER PRESENTER

Secretary General,
National Working Group of Indonesia Medicinal Plant

Indah Yuning Prapti, MPH

Director General,
National Institute of Health Research and Development,
Ministry of Health Republic of Indonesia

Prof. dr. Tjandra Yoga Aditama, Sp.P(K)., DTM&H., MARS., DTCE.