DAFTAR PUSTAKA

Abdou, H.M. Yousel, M.I. Newairy, A.A. 2018.*Triton WR-1339-induced hyperlipidemia, DNA fragmentation, neurotransmitters inhibition, oxidative damage, histopathological and morphometric changes: the protective role of soybean oil*.The Journal of Basic and Applied Zoology.79:51 (https://doi.org/10.1186/s41936-018-0065-z).

Abdelgadir, A.A. Hassan, H.M. Eltaher, A.M. Mohammed, K.G. Mohammed, L.A. Hago, T.B. Aboulbashar, T.H. et al. 2020. Hypolipidemic Effect of Cinnamon (Cinnamon zeylanicum) Bark *Ethanolic Extract on Triton X-100 induced Hyperlipidemia in Albino Rats. Medicinal and Aromatic Plants*. 9: 351. doi: 10.35248/2167-0412.20.9.35

Adam, J.MF. 2014. *Ilmu Penyakit Dalam: Dislipidemia*, jilid II. Interna Publishing: Jakarta Pusat.

Adigun, N.S. Oladiji, A.T. Ajiboye, T.O. 2016. *Antioxidant and anti-hyperlipidemic activity of hydroethanolic seed extract of Aframomum melegueta K. Schum in Triton X-100 induced hyperlipidemic rats*. South African Journal of Botany. Vol 105:324-332.

Alves,B.M. Cohen, D.E. 2017.Triglyceride Metabolism in the liver. Compr Physiol;8(1):1-8.

Arung ET, Kusuma IW, Kim YU, Shimizu K, Kondo R. Antioxidative compounds from leaves of Tahongai (*Klienhovia hospita*). 2012. Journal of wood science; 58(1):77-80.

Arung ET, Kusuma IW, Purwatiningsih S, Roh SS, Yang CH, Jeon S, et al. 2009. Antioxidant Activity and Cytotoxicity of the Traditional Indonesian Medicine Tahongai (*Kleinhovia hospital* L.). J Acupunct Meridian Stud;2(4):306−308.

Apriliani,F.Y. 2015.*Potensi Ekstrak Daun Timo (Kleinhovia hospita) Sebagai Antioksidan dan Antihiperlipidemia: Metode DPPH dan Penghambatan Lipase In Vitro*. Skripsi tidak diterbitkan. Jember: Fakultas Farmasi, Universitas Jember.

Balboa, E.Z.B., Hernandez, I.M., Ilagan, A.S.D., Malabag, D.M.C., Vale, M.L.L.G., Aguila, S.C. et al. 2020. *The Antihyperlipidemic Property of the Crude Methanolic Extract of Antigonon Leptopus Hook & Arn. (Polygonaceae) Leaves in Triton X-Induced Hyperlipidemic Male*

*Sprague*Dawley *Rats*.European Journal of Molecular & Clinical Medicine. Vol 07: 4209-212

Balitbangkes. 2018. *Hasil Riset Kesehatan Dasar 2018*. Jakarta: Kementerian Kesehatan RI

Bencheikh, N., Bouhrim, M.,Merrouni, I.A.,Boutahiri, S.,Kharchoufa, L., Addi, M., Tungmunnithum, D., Hano, C., Eto, B., Legssyer, A., et al. 2021. *Antihyperlipidemic and Antioxidant Activities of Flavonoid-Rich Extract of Ziziphus lotus (L.) Lam. Fruits*. Appl. Sci., 11, 7788:1

Bereda, G. 2022. *Pathophysiology and Management of Dyslipidaemia.* Biomed J Sci & Tech Res 43(2). BJSTR: 34370.

Chahlia N. 2009. evaluation of hypolipidaemic activity of *Capparis decidua*. International Journal of Biomedical Science;5(1): 70-3.

Djabir YY, Arsyad MA, Sartini S, Lallo S. 2017. Potential roles of *Kleinhovia hospita* L. leaf extract in reducing doxorubicin acute hepatic, cardiac, and renal toxicities in rats. Phcog Res; 9:168-73.

Gan L., Ren G., Mo J., Zhang X., Yao W., dan Zhou C. 2009. Cycloartane Triterpenoids from Kleinhovia hospita. Journal of Natural Products, 72(6): 1102-1105.

Gazwi HSS, Hassan MSH, Ismail HA, Naem GFAE, Tony SK. 2023. The hypoglycemic and hypolipidaemic effects of polyphenol-rich strawberry juice on diabetic rats. Plant Foods for Human Nutrition:1-8

Govindula,A., Reddy, M.S., Manjula, M., Reddy, M.S.,Nusrath, Kalyan, P. 2019, *Invivo Antihyperlipidemic Activity and Preliminary Phytochemical Screening of Bauhinia Acuminata*. Int J Pharm Sci & Scient Res. 5:4,68

Ibrahim MA, Asuka E, Jialal I. 2022. Hypercholesterolemia. Treasure Island (FL): StatPearls Publishing; [cited 2023 Aug9]. Available from:https://europepmc.org/article/NBK/nbk459188#__NBK459188_dtls__

Karam, I., Yang, Y.J., Li, J.Y.2017. *Hyperlipidemia Background and Progress.*SM J Cardiolog and Cardiovasc Disord. 3(2): 1-6.

Kementrian Kesehatan RI. 2018. Laporan Nasional Riset Kesehatan Dasar. www.litbang.kemkes.go.id

McNamara,D.J. 2013. Cholesterol: Sources, Absorption, Function, and Metabolism. Encyclopedia of Human Nutrition (Third Edition). P341-45.

Minarfa, T. 2023. Efek Pemberian Ekstrak Etanol Daun Paliasa (Kleinhovia hospita Linn) terhadal Fungsi Hati Tikus Hiperkolesterolemia yang Diinduksi Triton X-100. Skripsi.

Mo J., Bai Y., Liu B., Zhou C., Zou L., dan Gan L. 2014. *Two New Cycloartane Triterpenoids from Kleinhovia hospita.* Helvetica Chimica Acta, 97(6): 887-894.

Naim, F., Marianti, A.,Susanti R. 2017. *Aktivitas Ekstrak Daun Jati Belanda terhadap Kadar Kolesterol HDL dan LDL pada Tikus Hiperkolesterolemia*. Life Science 6 (1):6.

Nanumala, SK. Nischal, Y. Sarika, M. Shravya GSS. 2014. *Hypolipidemic Activity of Ethanolic Extracta of Cassia Angustifolia in Triton-X100 Induced Hyperlipidemia in Rats.* Asian Journal of Pharmaceutical and Clinical Research. Vol 7, Suppl 1.

Onwe P, Folawiyo M, Anyigor-Ogah CS, Umahi G, Okorocha AE, Afoke A. 2015. *Hyperlipidemia: etiology and possible control*. IOSR J Dent Med Sci; 14(10):93-100.

Paramita, S. 2016. *Tahongai (Kleinhovia hospita L.): Review Sebuah Tumbuhan Obat Dari Kalimantan Timur*. Vol 9: 30-33

Parwin, A., Najmi, A.K., Ismail, M.V., Kaundal, M., Akhtar, M. 2018. *Protective effects of alendronate in Triton X-100-induced hyperlipidemia in rats.* Turk J Gastroenterol 2019; 30(6):558

Perhimpunan Dokter Spesialis Kardiovaskular Indonesia. 2013. *Pedoman Tatalaksana Dislipidemia*. Jakarta: Centra Communications

Rahim, A., Saito, Y., Miyake, K., Goto, M., Chen, C.H., Alam, G, et al. 2018. *Kleinhospitine E and Cycloartane Triterpenoids from Kleinhovia hospita*. J Nat Prod. 81(7):2

Raflizar, Sihombing, M. 2009. *Dekok Daun Paliasa (Kleinhovia hospital Linn) Sebagai Obat Radang Hati Akut*. Jurnal Ekologi Kesehatan. Vol 8(2): 992.

Rauf, A., Akram, M., Anwar, H., Daniyal, M., Munir, N., Bawazeer, S., Bawazeer, S. 2021.*Therapeutic potential of herbal medicine for the management of hyperlipidemia*: latest updates.Environmental Science and Pollution Research (https://doi.org/10.1007/s11356-022-19733-7.)

Ricardo, K.F.S., Oliveira, T.T.D., Nagem, T.J., Pinto, A.D.S., Oliveira, M.G.A., Soares, F, et al. 2001.*Effect of Flavonoids Morin; Quercetin and Nicotinic Acid on Lipid Metabolism of Rats Experimentally Fed with Triton*.Brazilian Archives of Biology and Technology an International Journal.Vol. 44, N. 3 :263 – 267

Saputra,S.H, 2021. *Fitokimia aneka produk dan manfaat dari ekstrak daun tahongai (Kleinhovia hospita L.).* JRTI.Vol 15: 446-450.

Saputri, S.S. 2019. *Efek Pemberian Ekstrak Daun Paliasa (Kleinhovia hospital Linn) Secara Subkronik Terhadap Kadal Kolesterol Total dan Low Density Lipoprotein (LDL) pada Tikus Putih.* Skripsi tidak diterbitkan. Makassar: Program Sarjana Fakultas Farmasi-UNHAS.

Shattat, G.2014. *A review Article on Hyperlipidemia: Types, Treatments, and New Drugs* Target. Biomed.&Pharmacol.J. Vol 7(2) : 399-401

Shoyaib AA, Archie SR, Karamyan VT.2020. *Intraperitoneal Route of Drug Administration : Should it Be Used in Experimental Animal Studies?.* Pharm Res. ; 37(1): 12. doi:10.1007/s11095-019-2745-x

Suryadevara, V., Doppalapudi, S., Chaladawada, A.K., Mudda, M., Potla, R.T. 2014. *Hypolipidemic activity of simvastatin solid dispersions in triton X-100-induced hyperlipidemic Wistar rats* .World J Pharm Sci; 2(10): 1310-1315

Tej, R., Hamdi, A., Beji, R.S., Wannes, W.A., Rebey, I.B., Samia,O, et al. 2019.*Does Lycium europaeum leaf have antihyperglycemic, antihyperlipidemic and antioxidant effects*.Braz. J. Pharm. Sci.:9

Wahyuni, R., Krisnawati. 2014. *Eksplorasi Hasil Hutan Bukan Kayu (HHBK) Berkhasiat Anti Kolesterol di Kabupaten Lombok Utara, Karangasem, dan Timor Tengah Selatan. Jurnal disajikan dalam Seminar Nasional Peranan dan Strategi Kebijakan Pemanfaatan*

Hasil Hutan Bukan Kayu dalam Meningkatkan Daya Guna Kawasan Hutan, Balai Penelitian Teknologi Hasil Hutan Bukan Kayu.Universitas Gajah Mada, Yogyakarta, 6-7 November 2014.

World Health Organization. 2022.*Global Health Observatory Data*.(online). (https://www.who.int/data/gho/indicator-metadata-registry/imr-details/3236. Diakses.2 Oktober 2022)

Ya, M., Chakraborty, M.N,. Kamath, J.V. 2012. *Effects of Vitis vinifera against Trition-X 100 induced hyperlipidaemia in rats*. International Research Journal of Pharmacy.(312).

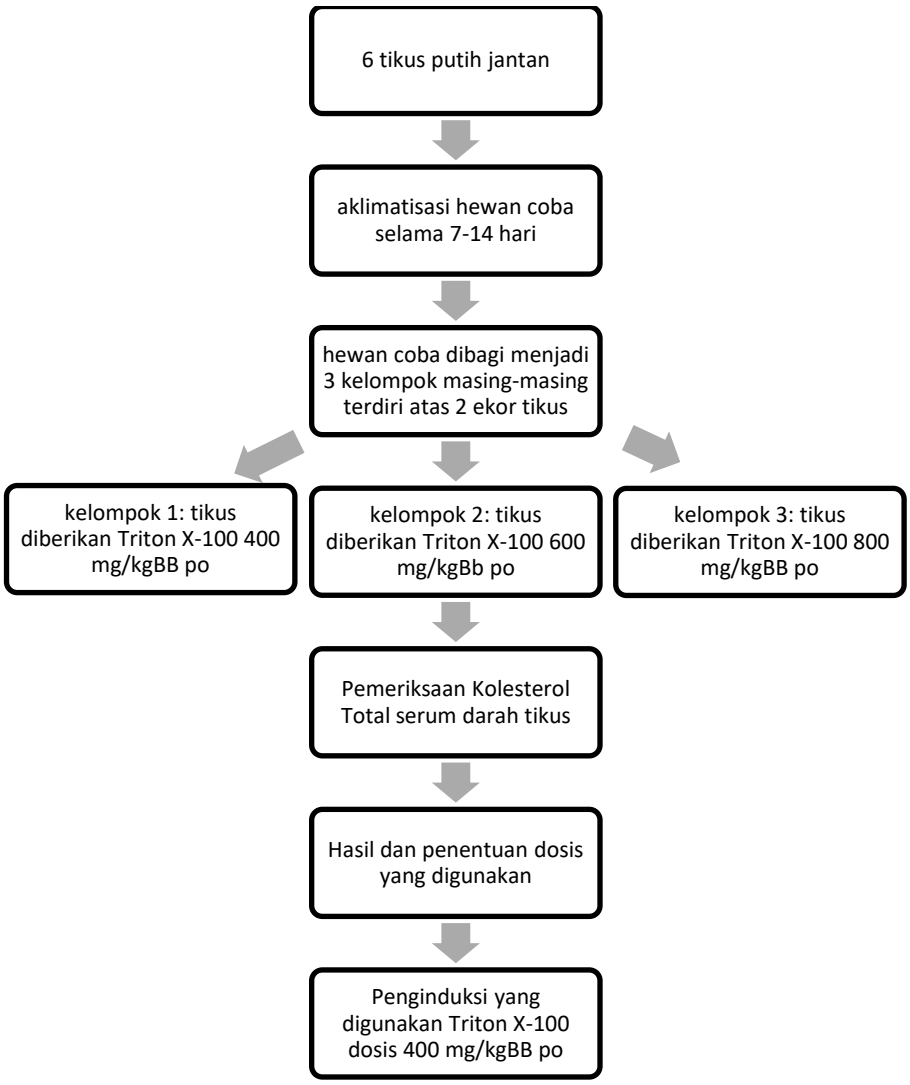
Yadav,S., Satapathy, T., Roy, A., Prasad, P. 2014. *Antihyperlipidemic Potential of Herbals*. Journal of Applied Pharmaceutical Research.Vol 2. :7-9.

Yuliana, Widarsa,T., Wiranatha, G. 2013. *Pemberian Ekstrak Methanol Daun Paliasa Menurunkan Kadar Glukosa Darah Tikus Hiperglikemik.* Jurnal Veteriner. Vol 14(4): 499.

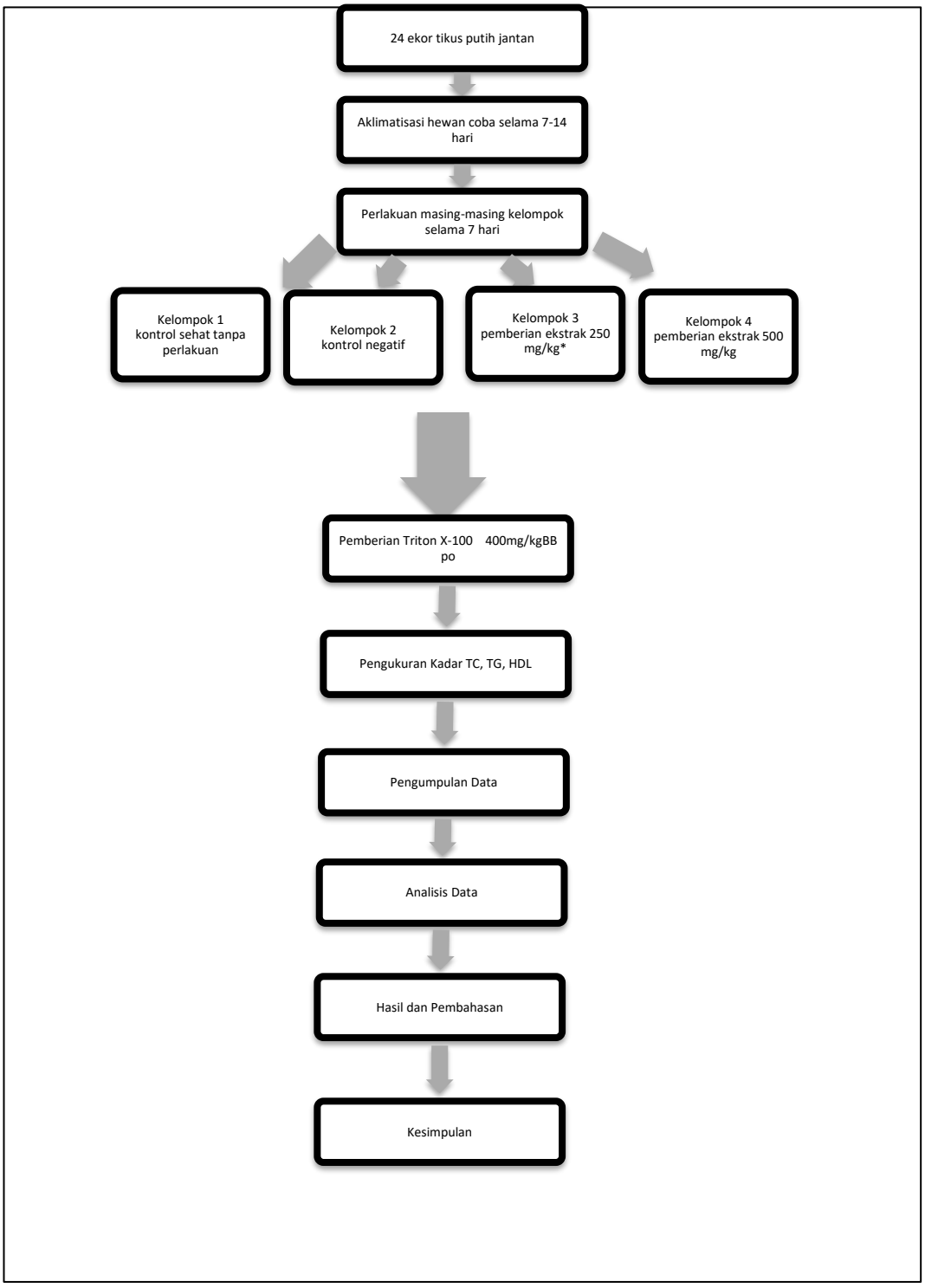
Zhou C., Zou L., Gan L., dan Cao YL. 2013. *Kleinhospitines A-D, New Cycloartane Triterpenoid Alkaloids from Kleinhovia hospita*. Organic Letters, 15(11): 2734- 2737.

LAMPIRAN

Lampiran 1. Preliminary Study



Lampiran 2. Skema Kerja



Lampiran 3. Proses Pembuatan Ekstrak Etanol Daun Paliasa

Gambar 9. Pengeringan Daun Paliasa

Gambar 10. SImplisia

Gambar 11. Proses Maserasi dan Penyaringan

Gambar 12. Proses pembuatan ekstrak kental

Lampiran 4. Pemeriksaan Sampel Darah

Gambar 14. Proses Pengambilan Darah Tikus

Gambar 15. Sentrifugasi Darah Tikus menjadi Serum Darah

Lampiran 5. Data penelitian dan Analisis Data

ANALISIS DATA KOLESTEROL TOTAL

NORMAL	PLACEBO	EKSTRAK 250 MG/KG	EKSTRAK 500 MG/KG
66.3	125	59.7	68.1
67.8	90	66.3	47.1
72	74.5	57.9	48.7
57.3	66.9	62.4	42.1

kelompok	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
				Lower Bound	Upper Bound		
normal	65.7750	6.32791	3.16396	55.7059	75.8441	57.00	72.00
negatif	89.1000	25.79160	12.89580	48.0598	130.1402	66.90	125.00
ekstrak 250	61.5750	3.65274	1.82637	55.7627	67.3873	57.90	66.30
esktrak 500	51.5000	11.41811	5.70906	33.3312	69.6688	42.10	68.10

Tests of Normality

	kelompok	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
kolesterol total	normal	.283	4	.	.928	4	.583
	negatif	.236	4	.	.905	4	.459
	ekstrak 250	.196	4	.	.967	4	.824
	esktrak 500	.347	4	.	.841	4	.198

a. Lilliefors Significance Correction

ANOVA

kolesterol total

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3038.362	3	1012.787	4.772	.021
Within Groups	2546.895	12	212.241		
Total	5585.258	15			

Multiple Comparisons

Dependent Variable: kolesterol total

LSD

(I) kelompok	(J) kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
normal	negatif	-23.32500*	10.30149	.043	-45.7700	-.8800
	ekstrak 250	4.20000	10.30149	.691	-18.2450	26.6450
	esktrak 500	14.27500	10.30149	.191	-8.1700	36.7200
negatif	normal	23.32500*	10.30149	.043	.8800	45.7700
	ekstrak 250	27.52500*	10.30149	.020	5.0800	49.9700
	esktrak 500	37.60000*	10.30149	.003	15.1550	60.0450
ekstrak 250	normal	-4.20000	10.30149	.691	-26.6450	18.2450
	negatif	-27.52500*	10.30149	.020	-49.9700	-5.0800
	esktrak 500	10.07500	10.30149	.347	-12.3700	32.5200
esktrak 500	normal	-14.27500	10.30149	.191	-36.7200	8.1700
	negatif	-37.60000*	10.30149	.003	-60.0450	-15.1550
	ekstrak 250	-10.07500	10.30149	.347	-32.5200	12.3700

*. The mean difference is significant at the 0.05 level.

ANALISIS DATA TRIGLISERIDA

NORMAL	PLACEBO	EKSTRAK 250 MG/KG	EKSTRAK 500 MG/KG
247	279	127	280
234	165	85.7	189
229	133	77.6	86.9
173	124	61.3	73.6

kelompok	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
				Lower Bound	Upper Bound		
normal	220.7500	32.72486	16.36243	168.6774	272.8226	173.00	247.00
negatif	175.2500	71.36934	35.68467	61.6854	288.8146	124.00	279.00
ekstrak 250	87.9000	27.97201	13.98600	43.3903	132.4097	61.30	127.00
esktrak 500	157.3750	96.64714	48.32357	3.5878	311.1622	73.60	280.00

Tests of Normality

	kelompok	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
TG	normal	.350	4	.	.832	4	.172
	negatif	.307	4	.	.819	4	.140
	ekstrak 250	.281	4	.	.921	4	.544
	esktrak 500	.267	4	.	.900	4	.433

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
TG	Based on Mean	3.291	3	12	.058
	Based on Median	2.010	3	12	.166
	Based on Median and with adjusted df	2.010	3	8.022	.191
	Based on trimmed mean	3.072	3	12	.069

Multiple Comparisons

Dependent Variable: TG

LSD

(I) kelompok	(J) kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
normal	negatif	45.50000	45.12151	.333	-52.8113	143.8113
	ekstrak 250	132.85000*	45.12151	.012	34.5387	231.1613
	esktrak 500	63.37500	45.12151	.186	-34.9363	161.6863
negatif	normal	-45.50000	45.12151	.333	-143.8113	52.8113
	ekstrak 250	87.35000	45.12151	.077	-10.9613	185.6613
	esktrak 500	17.87500	45.12151	.699	-80.4363	116.1863
ekstrak 250	normal	-132.85000*	45.12151	.012	-231.1613	-34.5387
	negatif	-87.35000	45.12151	.077	-185.6613	10.9613
	esktrak 500	-69.47500	45.12151	.150	-167.7863	28.8363
esktrak 500	normal	-63.37500	45.12151	.186	-161.6863	34.9363
	negatif	-17.87500	45.12151	.699	-116.1863	80.4363
	ekstrak 250	69.47500	45.12151	.150	-28.8363	167.7863

*. The mean difference is significant at the 0.05 level.

ANALISIS DATA HDL

NORMAL	PLACEBO	EKSTRAK 250 MG/KG	EKSTRAK 500 MG/KG
51.9	51.6	45.1	43.8
43.1	43	45	54.4
45.1	41.6	47.4	42.5
46.1	34.6	36.3	37

kelompok	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
				Lower Bound	Upper Bound		
normal	46.5500	3.77845	1.88922	40.5376	52.5624	43.10	51.90
negatif	42.7000	6.97902	3.48951	31.5948	53.8052	34.60	51.60
ekstrak 250	43.4500	4.89387	2.44694	35.6628	51.2372	36.30	47.40
esktrak 500	44.4250	7.27387	3.63693	32.8507	55.9993	37.00	54.40

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
HDL	Based on Mean	.336	3	12	.800
	Based on Median	.309	3	12	.819
	Based on Median and with adjusted df	.309	3	10.487	.819
	Based on trimmed mean	.328	3	12	.805

ANOVA

HDL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	33.437	3	11.146	.319	.812
Within Groups	419.528	12	34.961		
Total	452.964	15			

Multiple Comparisons

Dependent Variable: HDL

LSD

(I) kelompok	(J) kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
normal	negatif	3.85000	4.18095	.375	-5.2595	12.9595
	ekstrak 250	3.10000	4.18095	.473	-6.0095	12.2095
	esktrak 500	2.12500	4.18095	.620	-6.9845	11.2345
negatif	normal	-3.85000	4.18095	.375	-12.9595	5.2595
	ekstrak 250	-.75000	4.18095	.861	-9.8595	8.3595
	esktrak 500	-1.72500	4.18095	.687	-10.8345	7.3845
ekstrak 250	normal	-3.10000	4.18095	.473	-12.2095	6.0095
	negatif	.75000	4.18095	.861	-8.3595	9.8595
	esktrak 500	-.97500	4.18095	.820	-10.0845	8.1345
esktrak 500	normal	-2.12500	4.18095	.620	-11.2345	6.9845
	negatif	1.72500	4.18095	.687	-7.3845	10.8345
	ekstrak 250	.97500	4.18095	.820	-8.1345	10.0845

Lampiran 6. Surat Izin etik

KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI
UNIVERSITAS HASANUDDIN FAKULTAS KEDOKTERAN
KOMITE ETIK PENELITIAN UNIVERSITAS HASANUDDIN
RSPTN UNIVERSITAS HASANUDDIN
RSUP Dr. WAHIDIN SUDIROHUSODO MAKASSAR
Sekretariat : Lantai 2 Gedung Laboratorium Terpadu
JL.PERINTIS KEMERDEKAAN KAMPUS TAMALANREA KM.10 MAKASSAR 90245.
Contact Person: dr. Agussalim Bukhari.,MMed,PhD, SpGK TELP. 081241850858, 0411 5780103, Fax : 0411-581431

REKOMENDASI PERSETUJUAN ETIK
Nomor : 488/UN4.6.4.5.31/ PP36/ 2023

Tanggal: 17 Juli 2023

Dengan ini Menyatakan bahwa Protokol dan Dokumen yang Berhubungan Dengan Protokol berikut ini telah mendapatkan Persetujuan Etik :

No Protokol	UH23050357	No Sponsor	
Peneliti Utama	**dr. Andi Irma Suryani, S.Ked**	Sponsor	
Judul Peneliti	UJI ANTI HIPERLIPIDEMIA EKSTRAK ETANOL DAUN PALIASA (Kleinhovia hospita L.) PADA TIKUS MODEL HIPERLIPIDEMIA YANG DIINDUKSI TRITON X-100		
No Versi Protokol	**2**	Tanggal Versi	**14 Juli 2023**
No Versi PSP		Tanggal Versi	
Tempat Penelitian	Fakultas Farmasi Universitas Hasanuddin Makassar		
Jenis Review	[ ] Exempted [x] Expedited [ ] Fullboard Tanggal	Masa Berlaku **17 Juli 2023** sampai **17 Juli 2024**	Frekuensi review lanjutan
Ketua KEP Universitas Hasanuddin	Nama **Prof.Dr.dr. Suryani As'ad, M.Sc.,Sp.GK (K)**	Tanda tangan	
Sekretaris KEP Universitas Hasanuddin	Nama **dr. Agussalim Bukhari, M.Med.,Ph.D.,Sp.GK (K)**	Tanda tangan	

Kewajiban Peneliti Utama:

- Menyerahkan Amandemen Protokol untuk persetujuan sebelum di implementasikan
- Menyerahkan Laporan SAE ke Komisi Etik dalam 24 Jam dan dilengkapi dalam 7 hari dan Lapor SUSAR dalam 72 Jam setelah Peneliti Utama menerima laporan
- Menyerahkan Laporan Kemajuan (progress report) setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah
- Menyerahkan laporan akhir setelah Penelitian berakhir
- Melaporkan penyimpangan dari prokol yang disetujui (protocol deviation / violation)
- Mematuhi semua peraturan yang ditentukan