DAFTAR PUSTAKA

Abbas AM. Cardioprotective effect of resveratrol analogue isorhapontigenin versus omega-3 fatty acids in isoproterenol-induced myocardial infarction in rats. *J Physiol Biochem.* 2016; 72:469–484. doi: 10.1007/s13105-016-0494-4.

Adameova, A. D., Bhullar, S. K., Elimban, V., & Dhalla, N. S. (2018). Activation of β1-adrenoceptors may not be involved in arrhythmogenesis in ischemic heart disease. Reviews in Cardiovascular Medicine, 19, pp. 97–101, 2018.

Afroz. R, Tanvir. E. M, Karim. N, Hossain. Md. S, Alam. N, Gan. S. H, Khalil. I, "Sundarban Honey Confers Protection against Isoproterenol-Induced Myocardial Infarction in Wistar Rats", *BioMed Research International*, 2016, pp. 1-2, 2016

Ahmed SM, Abdelrahman SA, Salama AE. Efficacy of gold nanoparticles against isoproterenol induced acute myocardial infarction in adult male albino rats. *Ultrastruct Pathol.* 2017; 41:168–185. doi: 10.1080/01913123.2017.1281367.

Alam MN, Hossain MM, Rahman MM, Subhan N, Mamun MAA, Ulla A, Reza HM, Alam MA. Astaxanthin prevented oxidative stress in heart and kidneys of ısoproterenol-administered aged rats. *J Diet Suppl.* 2017; 15:42–54. doi: 10.1080/19390211.2017.1321078.

Arung. E, Kusuma. I, Kim. YU, Shimizu. K, Kondo R, "Senyawa antioksidan dari daun tahongai (Kleinhovia hospita)", *J Wood Sci* (58), pp. 77-80, 2012

Azab E & elsayed A, Acute Myocardial Infarction, Journal of Biotechnology 3(4):00075, 2017.

Bagatini, M. D, Martins. C, Battisti. V, Gasparetto, D., da Rosa, C., Spanevello, R. *et al*, Oxidative stress versus antioxidant defenses in patients with acute myocardial infarction, Heart Vessels, 26 (1), pp. 55-63, 2011.

Ballestri S, Lonardo A, Bonapace S, et al. Risk of cardiovascular, cardiac and arrhythmic complications in patients with non-alcoholic fatty liver disease. World J Gastroenterol, 20, pp. 1724–1745, 2014

Bęćkowski M. Acute coronary syndromes in young women–the scale of the problem and the associated risks. Kardiochirurgia i torakochirurgia polska, Polish journal of cardiothoracic surgery, 12(2):134, 2015.

Benjamin EJ, Virani SS, Callaway CW *et al*, American Heart Association Council on Epidemiology and Prevention Statistics Committee and

Stroke Statistics Subcommittee. Heart Disease and Stroke Statistics-2018 Update: A Report from the American Heart Association, Circulation, 137(12): e67-e492, 2018.

Boyde T R & Kwong E M, Aspartate aminotransferase isoenzymes—Differential kinetic assay in serum, Clin Chim Acta, 128, pp. 95–102, 1983.

Dhalla, N., Elmoselhi, A., Hata, T. & Makino, N, Status of myocardial antioxidants in ischemiareperfusion injury, Cardiovasc Res, 47 (3), pp. 446–456, 2000.

Dini, I & Darminto, Metode Isolasi Senyawa Bioaktif pada Tumbuhan Paliasa (Kleinhovia hospita Linn.), Jurnal Chemica, 13 (2), pp. 11-16, 2012.

Djabir. Y. Y, Natsir. S, Aryadi. A, "Potential Roles of Kleinhovia hospita L. Leaf Extract in Reducing Doxorubicin Acute Hepatic, Cardiac, and Renal Toxicities in Rats", *Pharmacology Research,* 9 (2), pp. 168-172, 2017.

e Floras. 2016. Flora of China. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA.

Enos. Mengilmiahkan Obat Alamiah. 2012: diambil dari http://www.ristek.go.id.\

Geng, Y., Ishikawa, Y., Vatner, D., Wagner, T., Bishop, S., Vatner, S. *et al,* Apoptosis of cardiac myocytes in Gsalpha transgenic mice, Circ Res, 84 (1), pp. 34–42, 1999.

Hutcheson R & Rocic P, The metabolic syndrome, oxidative stress, environment, and cardiovascular disease: The great exploration, Exp Diabetes Res 2012.

Iwase, M., Bishop, S., Uechi, M., Vatner, D., Shannon, R., Kudej, R. et al, Adverse effects of chronic endogenous sympathetic drive induced by cardiac GS alpha overexpression, Circ Res, 78 (4), pp. 517–24, 1996.

Izem-Meziane. M, Djerdjouri, B., Rimbaud, S., Caffin, F., Fortin, D., Garnier, A. *et* al, Catecholamine induced cardiac mitochondrial dysfunction and mPTP opening: protective effect of curcumin, Am J Physiol Heart Circ Physiol, 302 (3), pp.665-674, 2012.

Jangaard N, Sarkisian L, Saaby L *et al*, Incidence, frequency, and clinical characteristics of type 3 myocardial infarction in clinical practice, Am J Med, 130 (7), 2017.

Jin JI, Lv RG, Guo J, Liu XH, Liang YW, Wei JR, et al. Improvement of Left Ventricular Remodelling by Inhibition of NF-κB in a Rat Model of

Myocardial Infarction. Heart Lung and Circulation, 25(10), pp. 1007–12, 2016.

Johnston C C & Bolton E C, Cardiac enzymes, Ann Emerg Med, 11 (1), pp. 27–35, 1982.

Karmen A, Wroblewski F, Ladue JS, Transaminase activity in human blood, J Clin Invest, 34 (1), pp. 126–131, 1955.

Khdhiri. E, Mnafgui. K, Ncir. M, Feriani. A, Ghazouani. L, Hajji. R, Jallouli. D, Abid. M, Jamoussi. K, Allouche. N, Ammar. H, Abid. S, "Cardiopreventive capacity of a novel (E)-N'-(1-(7-methoxy-2-oxo-2H-chromen-3-yl) ethylidene)-4-methylbenzenesulf onohydrazide against isoproterenol-induced myocardial infarction by moderating biochemical, oxidative stress, and histological parameters" *J Biochem Mol Toxicol,* 35 (6), 2021.

Ma, Y, Cheng, W, S & Wong, T, Oestrogen confers cardioprotection by suppressing Ca2+/calmodulin–dependent protein kinase II. Br J Pharmacol, 157 (5), pp. 705–715, 2009.

Ma L, Sun P, Zhang JC, Zhang Q, Yao SL. Proinflammatory effects of S100A8/A9 via TLR4 and RAGE signaling pathways in BV-2 microglial cells. Int J Mol Med, 40(1), pp. 31–8, 2017

Mangali S, Bhat A, Udumula MP, Dhar I, Sriram D, Dhar A. Inhibition of protein kinase R protects against palmitic acid-induced inflammation, oxidative stress, and apoptosis through the JNK/NF-kB/NLRP3 pathway in cultured H9C2 cardiomyocytes. Journal Cell Biochemistry, 120(3), pp. 3651–63, 2019.

Mann, D., Kent, R., Parsons, B. and Cooper, G, Adrenergic effects on the biology of the adult mammalian cardiocyte, Circulation, 85 (2), pp. 790–804, 1992.

Manna P & Jain S. K, Obesity, oxidative stress, adipose tissue dysfunction, and the associated health risks: Causes and therapeutic strategies, Metab Syndr Relat Disord, 13 (10), pp. 423–444, 2015

Massberg S, Polzin A, Update ESC-Guideline 2017: Dual Antiplatelet Therapy, Dtsch Med Wochenschr, 43 (15), pp. 1090-1093, 2018.

Meeran, M. F. N & Prince P. S. M, Protective effects of N-acetyl cysteine on membrane-bound adenosine triphosphatases and minerals in isoproterenol-induced myocardial infarcted rats: an in vivo and in vitro study, J Biochem Mol Toxicol, 26 (7), pp. 276–281, 2012.

Michaud K, basso K, d'amadanti G et al, Diagnosis of myocardial infarction at autopsy: AECVP reappraisal in the light of the current clinical classification, virchows archiv, 476, pp. 179-194, 2020.

Mo. J. X, Bai. Y, Liu. B, Zhou. C. X, Zou. L, Gan. L. S, “Two new cycloartane triterpenoids from *Kleinhovia hospita*”, *Helv Chim Acta,* 97, pp. 89-94, 2014

Mohan. P & Bloom. S, Lipolysis is an important determinant of isoproterenol-induced myocardial necrosis. Cardiovasc Pathol, 8 (5), pp. 255–261, 1999.

Mythili S & Malathi N, Diagnostic markers of acute myocardial infarction, Biomed Rep, 3 (6), pp. 743-748, 2015.

Nichtova, Z., Novotova, M., Kralova, E. & Stankovicova, T, Morphological and functional characteristics of models of experimental myocardial injury induced by isoproterenol. Gen Physiol Biophys, 31 (2), pp. 41–151, 2012

Niessen, H., Krijnen, P., Visser, C., Meijer, C. and Erik, H, Type II secretory phospholipase A2 in cardiovascular disease: a mediator in atherosclerosis and ischemic damage to cardiomyocytes, Cardiovasc Res, 60 (1), pp. 68–77, 2003.

Nusan, S., Soekamto, N. H., Firdaus, F., & Syah, Y. M. Antimicrobial and anti-HCV activity of triterpenoid and alkaloid compounds from Melochia umbellata (Houtt.) Stapf var Visenia (Paliasa). Journal of Applied Pharmaceutical Science. 2022: 10(4) pp 135–141. https://doi.org/10.7324/JAPS.2020.104017.

Olivier, B B, Myocardial cell death and regeneration. In Acute Coronary Syndromes: A companion to Braunwald’s heart disease, Saunders, pp 66-80, 2011.

Panteghini M, Diagnostic application of CK-MB mass determination, Clin Chim Acta, 272 (1), pp. 23–31, 1998.

Paramita S “Tahongai (Kleinhovia hospita L.): Review Sebuah Tumbuhan Obat Dari Kalimantan Timur, *J - Medicine*, 9 (1), pp. 29-31, 2016.

Parsanathan, R & Jain. S, Novel Invasive and Noninvasive Cardiac-Specific Biomarkers in Obesity and Cardiovascular Diseases, Metab Syndr Relat Disord, 18 (1), pp. 10-30, 2019.

Patel, D. K, Desai, S. N, Gandhi, H. P, Devkar, R. V & Ramachandran. A, Cardio protective effect of Coriandrum sativum L. on isoproterenol induced myocardial necrosis in rats. Food Chem Toxicol, 50 (9), pp. 3120–3125, 2012.

Rabkin SW, Desjardins P. Mitochondrial and cytoplasmic isoenzymes of aspartate aminotransferase in sera of patients after myocardial infarction. Clin Chim Acta, 138, pp. 245–257, 1984.

Remondino, A., Kwon, S., Communal, C., Pimentel, D., Sawyer, D., Singh, K. *et al*, Beta– adrenergic receptor-stimulated apoptosis in cardiac myocytes is mediated by reactive oxygen species/c-Jun NH2-terminal kinase-dependent activation of the mitochondrial pathway, Circulation Research, 92 (2), pp. 136–138, 2003.

Rona. G, Catecholamine cardiotoxicity, Journal of Molecular and Cellular Cardiology, 17 (4), pp. 291-306, 1985.

Saadane, N., Alpert, L. and Chalifour, L, Expression of immediate early genes, GATA-4, and Nkx-2.5 in adrenergic–induced cardiac hypertrophy and during regression in adult mice, Br J Pharmacol, 127 (5), pp. 1165–1176, 1999.

Sanada S, Komuro I &Kitakaze M, Pathophysiology of myocardial reperfusion injury: preconditioning, postconditioning, and translational aspects of protective measures, AJP Heart Circ. Physiol, 301 (5) pp. 1723-1741, 2011.

Scheen AJ, From atherosclerosis to atherothrombosis : from a silent chronic pathology to an acute critical event, Rev Med Liege, 73 (5-6) , pp. 224-228, 2018.

Schindhelm R K, Dekker J M, Nijpels G, et al. Alanine aminotransferase predicts coronary heart disease events: A 10-year follow-up of the Hoorn Study. Atherosclerosis, 191 (20), pp. 391–396, 2007.

Shaik, A, H. Rasool, S. N, Kareem, M. A, Krushna, G. S, Akhtar P. M & Devi, K. L, Maslinic acid protects against isoproterenol–induced cardiotoxicity in albino Wistar rats, J Med Food, 15 (8), pp. 741–746, 2012.

Shen J, Zhang J, Wen J, et al, Correlation of serum alanine aminotransferase and aspartate aminotransferase with coronary heart disease, Int J Clin Exp Med, 8 (3), pp. 4399–4404, 2015.

Sinner MF, Wang N, Fox CS, et al, Relation of circulating liver transaminase concentrations to risk of new-onset atrial fibrillation, Am J Cardiol, 111 (2), pp. 219–224, 2013.

Spector, W,G., Pengantar Patologi Umum, edisi Ketiga, Direvisi oleh T,D. Spector, 71-91, Fakultas Kedokteran, UGM, Yogyakarta, 1993.

Tappel, A, Lipid peroxidation damage to cell components, Fed Proc, 32 (8), pp. 1870–1874, 1973.

Tappia, P., Hata, T., Hozaima, L., Sandhu, M., Panagia, V. and Dhalla, N, Role of oxidative stress in catecholamine-induced changes in cardiac sarcolemmal Ca2+ transport, Arch Biochem Biophys, 387 (1), pp. 85–92, 2001.

Tayeb R, Alam G, Pakki E, Djabir YY. Paliasa (*Kleinhovia hospita* L.) Hepatoprotector Tea Bag preparation as supporting therapy in the

use of fixed-dose combination of antituberculosis drugs. Journal of Physics: Conference Series, 1341(7), 2019.

Tokgözoğlu, L, Atherosclerosis and the role of inflammation, Turk Kardiyol Dern Ars, 37 (4), pp. 1–6, 2009.

Ugwu CE, Nwankwo SE, Meludu SC, Nnodim JK. Assessment of the risk of myocardial infarction among undergraduate students in a Nigerian tertiary institution, International Journal of Healthcare and Medical Sciences, 2 (11), pp. 60-65, 2016.

United States Departement of Agriculture (USDA). 2016. Plants Database: Kleinhovia hospita L. http://www.plants.usda.gov

Vijayan, N. A, Thiruchenduran, M. & Devaraj. S, Anti-inflammatory and anti-apoptotic effects of Crataegus oxyacantha on isoproterenol-induced myocardial damage, Mol Cell Biochem, 367 (1-2), pp. 1–8, 2012.

Wahyono, S, Laporan Nasional Eksplorasi Pengetahuan Lokal Etnomedisin dan Tumbuhan Obat Berbasis Komunitas di Indonesia. Balai Besar Litbang Tanaman Obat dan Obat Tradisional. 2017

Yeluri, S. D, Study of Enzymes in Myocardial Infarction, Journal of Clinical and Experimental Research in Cardiology, 4 (2), pp. 1-17, 2018.

Yun K, E, Shin CY, Yoon YS, et al, Elevated alanine aminotransferase levels predict mortality from cardiovascular disease and diabetes in Koreans, Atherosclerosis, 205 (2), pp. 533–537, 2008.

Yunita, Irawan A, & Nurmasari R, Skrining Fitokimia Daun Tumbuhan Katimaha (Kleinhovia hospital L.). Sains dan Terapan Kimia. 3 (2), pp. 112 – 123, 2009

Zaki. A. A, Hashish. N. E, Amer. M. A, Lahloub. M. F, “Cardioprotective and antioxidant effects of oleogum resin "Olibanum" from Bos Boswellia carteri Birdw. (Bursearceae)”, *Chin J Nat Med,* 12 (5), pp. 345-350, 2014.

Zhang, G., Kimura, S., Nishiyama, A., Shokoji, T., Rahman, M., Yao, L, *et al*, Cardiac oxidative stress in acute and chronic isoproterenol–infused rats, Cardiovasc Res, 65 (1), pp. 230–238, 2005.

Zhang, G., Ohmori, K., Nagai, Y., Fujisawa, Y., Nishiyama, A., Abe, Y. et al, Role of AT1 receptor in isoproterenol-induced cardiac hypertrophy and oxidative stress in mice, J Mol Cell Cardiol, 42(4), pp. 804–811, 2007.

Zhang S, Zhang Y. Isoflurane reduces endotoxin-induced oxidative, inflammatory, and apoptotic responses in H9c2 cardiomyocytes. Eur Rev Med Pharmacol Sci, 22(12), pp. 3976–87, 2018. Zhou. C. X, Zou L, Gan. L. S, Cao. Y. L, “Kleinhospitines A-D, cycloartane

baru Alkaloid triterpenoid dari Kleinhovia hospital", *Org Lett,* 15, pp. 2734-2737, 2013.

LAMPIRAN

Lampiran 1. Kelayaakan 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 : 751/UN4.6.4.5.31/ PP36/ 2022

Tanggal: 23 Nopember 2022

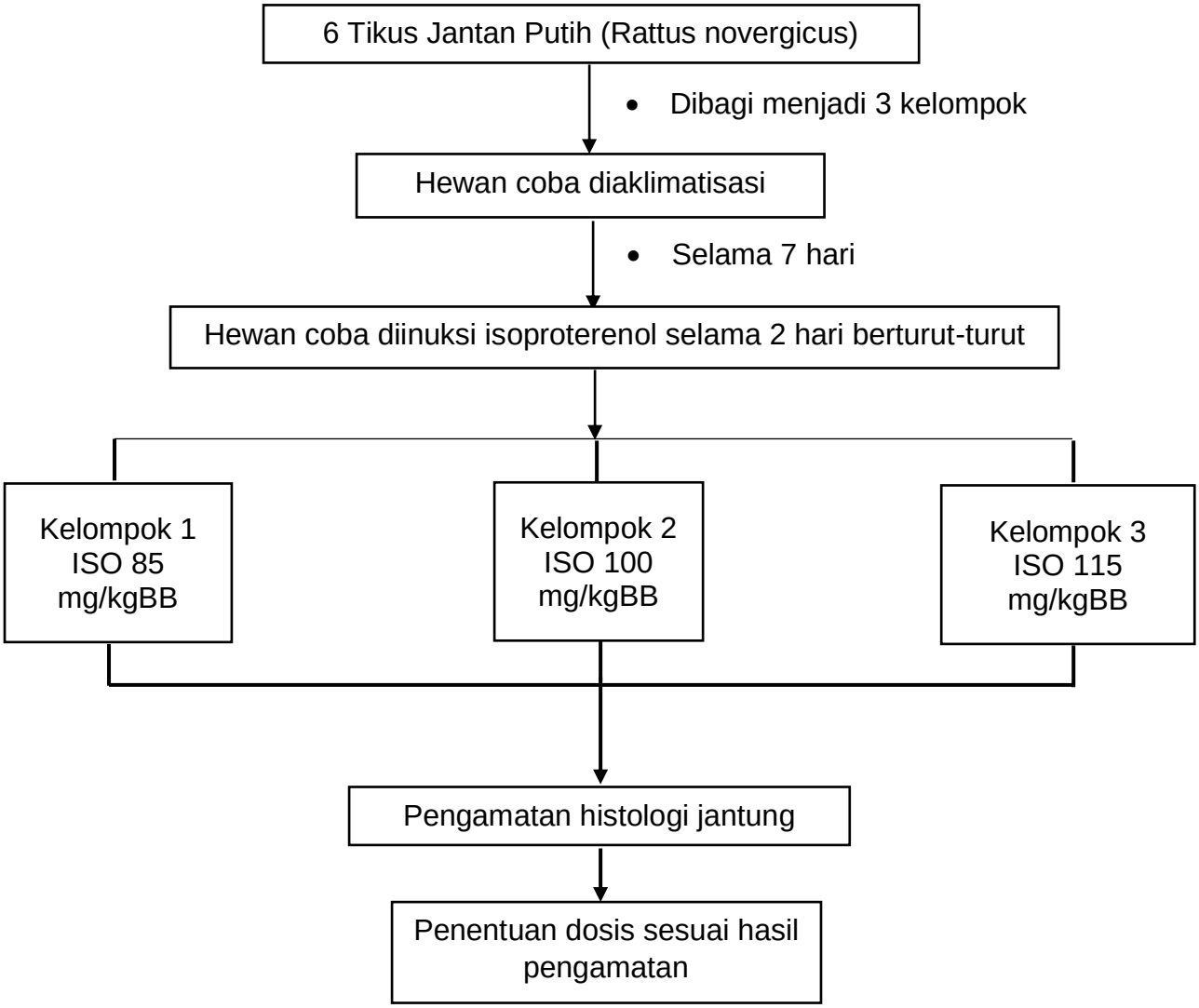
Dengan ini Menyatakan bahwa Protokol dan Dokumen yang Berhubungan Dengan Protokol berikut ini telah mendapatkan Persetujuan Etik :

No Protokol	UH22090522	No Sponsor Protokol	
Peneliti Utama	**apt. Fitriani W. Alani, S.Farm**	Sponsor	
Judul Peneliti	UJI EFEK EKSTRAK ETANOL DAUN PALIASA (Kleinhovia hospita L.) TERHADAP BIOMARKER DAN STRUKTUR MIOKARDIUM TIKUS YANG DIINDUKSI ISOPROTERENOL		
No Versi Protokol	**2**	Tanggal Versi	**18 Nopember 2022**
No Versi PSP		Tanggal Versi	
Tempat Penelitian	Laboratorium Fakultas Farmasi Universitas Hasanuddin MAkassar		
Jenis Review	☐ Exempted ☒ Expedited ☐ Fullboard Tanggal	Masa Berlaku **23 Nopember 2022** sampai **23 Nopember 2023**	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	

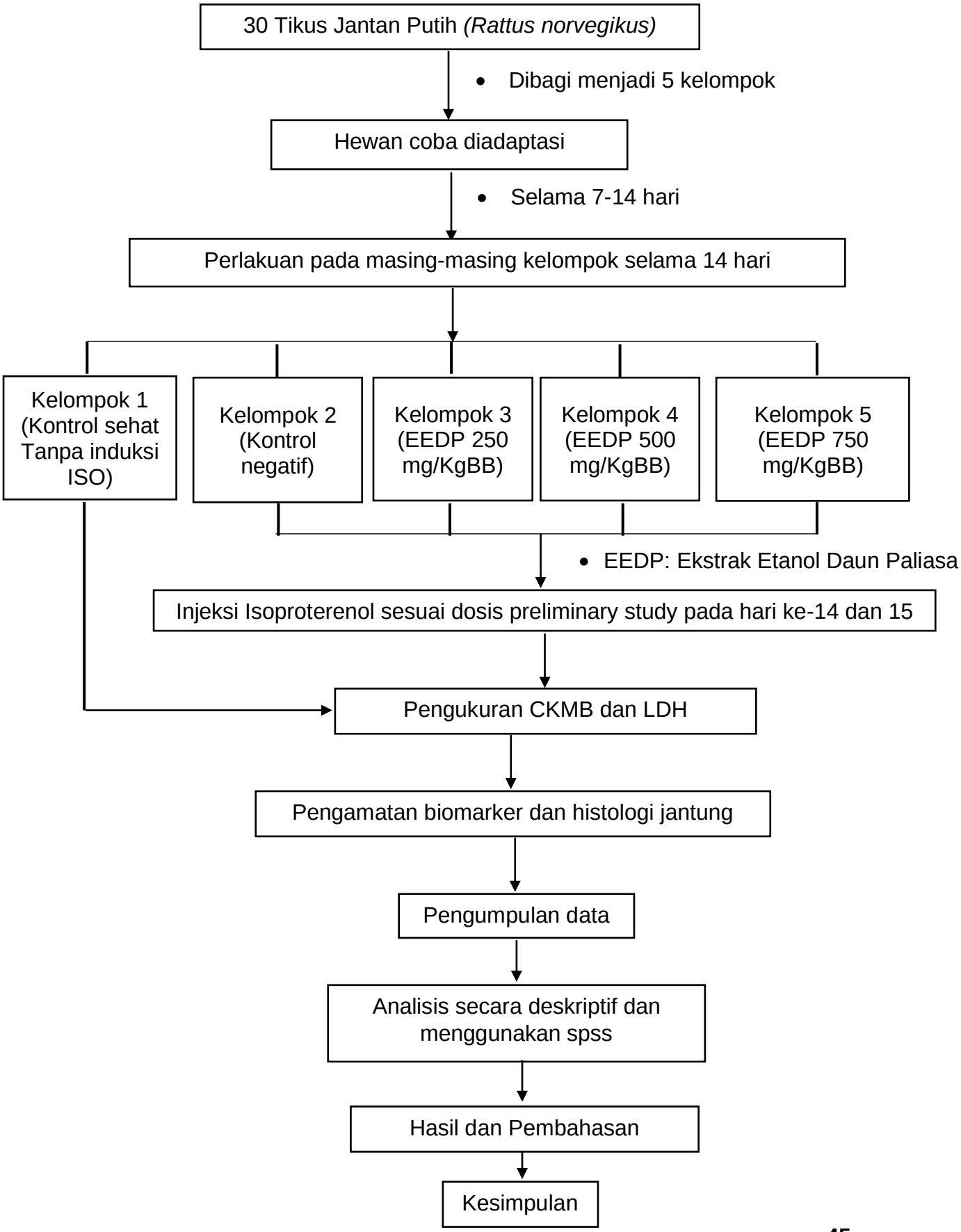
Kewajiban Peneliti Utama:

- 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

Lampiran 2. *Preliminary Study*



Lampiran 3. Alur Penelitian



Lampiran 4. Komposisi Reagen

CKMB

Mengandung komposisi reagen:

BUF	1 X 60 ml larutan buffer	
	Imidazole buffer (pH 6.7)	0.10 mol/l
	Glucose	20 mmol/l
	Mg-acetate	10 mmol/l
	EDTA	2.00 mmol/l
ENZ	20 x 3 ml enzyme/reagen antibody (lyoph.)	
	ADP	2.00 mmol/l
	AMP	5.00 mmol/l
	Diadenosine pentaphosphate	10 µmol/l
	NADP	2.00 mmol/l
	HK	> 2.50 U/ml
	G6P-DH	> 1.50 U/ml
	N-Acetylcysteine	20 mol/l
	Creatine phosphate polyclonal Antibody to CKMB subunit	30 mmol/l

LDH

Mengandung komposisi reagen:

REF	**12214**	**12014**	**12024**
BUF	16 x 4 ml	10 x 8 ml	8 x 40 ml
BUF	1 x 16 ml	2 x 10 ml	8 x 10 ml
	Buffer/Substrat		
	TRIS buffer (pH 7.35)		62.5 mmol/l
	Pyruvate		1.5 mmol/l
	Sodium azide		0.095 %
	Substrat		
	NADH		0.75 mmol/l
	Sodium azide		0.095%

Lampiran 5. Pengolahan Data dan Analisis statistik

No	Kelompok perlakuan	CKMB (U/l)	LDH (U/l)
1	Kontrol Normal	48.21 ± 5.06	100.84 ± 19.17
2	Kontrol Negatif	494.38 ± 61.22	274.40 ± 31.67
3	Ekstrak etanol daun paliasa 250 mg/kgbb	298.33 ± 58.51	258.40 ± 52.29
4	Ekstrak etanol daun paliasa 500 mg/kgbb	222.87 ± 66.87	127.67 ± 18.23
5	Ekstrak etanol daun paliasa 750 mg/kgbb	121.79 ± 12.43	117.26 ± 19.17

1. Data CKMB

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk	
KELOMPOK PERLAKUAN		Statistic	df	Sig.	Statistic	df
KELOMPOK CKMB	NORMAL	0.384	3		0.753	3
	NEGATIF	0.360	3		0.809	3
	KHLE 250 mg/Kg	0.317	3		0.888	3
	KHLE 500 mg/Kg	0.355	3		0.819	3
	KHLE 750 mg/Kg	0.249	3		0.967	3

P>0.05 menunjukkan data terdistribusi normal

ANOVA

KELOMPOK CKMB

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	357368.887	4	89342.222	12.596	0.001
Within Groups	70930.421	10	7093.042		
Total	428299.308	14			

P<0.05 terdapat perbedaan antara kelompok perlakuan

(I) KELOMPOK PERLAKUAN		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
NORMAL	NEGATIF	-446.17333*	68.76551	0.001	-672.4863	-219.8604
	KHLE 250 mg/Kg	-250.12667*	68.76551	0.029	-476.4396	-23.8137
	KHLE 500 mg/Kg	-174.66000	68.76551	0.157	-400.9729	51.6529
	KHLE 750 mg/Kg	-73.58000	68.76551	0.818	-299.8929	152.7329
NEGATIF	NORMAL	446.17333*	68.76551	0.001	219.8604	672.4863
	KHLE 250 mg/Kg	196.04667	68.76551	0.099	-30.2663	422.3596
	KHLE 500 mg/Kg	271.51333*	68.76551	0.018	45.2004	497.8263
	KHLE 750 mg/Kg	372.59333*	68.76551	0.002	146.2804	598.9063
KHLE 250 mg/Kg	NORMAL	250.12667*	68.76551	0.029	23.8137	476.4396
	NEGATIF	-196.04667	68.76551	0.099	-422.3596	30.2663
	KHLE 500 mg/Kg	75.46667	68.76551	0.804	-150.8463	301.7796
	KHLE 750 mg/Kg	176.54667	68.76551	0.151	-49.7663	402.8596
KHLE 500 mg/Kg	NORMAL	174.66000	68.76551	0.157	-51.6529	400.9729
	NEGATIF	-271.51333*	68.76551	0.018	-497.8263	-45.2004
	KHLE 250 mg/Kg	-75.46667	68.76551	0.804	-301.7796	150.8463
	KHLE 750 mg/Kg	101.08000	68.76551	0.602	-125.2329	327.3929
KHLE 750 mg/Kg	NORMAL	73.58000	68.76551	0.818	-152.7329	299.8929
	NEGATIF	-372.59333*	68.76551	0.002	-598.9063	-146.2804
	KHLE 250 mg/Kg	-176.54667	68.76551	0.151	-402.8596	49.7663
	KHLE 500 mg/Kg	-101.08000	68.76551	0.602	-327.3929	125.2329

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

2. Data LDH

Tests of Normality

KELOMPOK PERLAKUAN		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
KELOMPOK LDH	NORMAL	0.181	3		0.999	3	0.940
	NEGATIF	0.338	3		0.852	3	0.246
	KHLE 250 mg/Kg	0.181	3		0.999	3	0.941
	KHLE 500 mg/Kg	0.239	3		0.975	3	0.696
	KHLE 750 mg/Kg	0.290	3		0.926	3	0.474

a. Lilliefors Significance Correction

P>0.05 menunjukkan data terdistribusi normal

ANOVA

KELOMPOK LDH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	83328.949	4	20832.237	7.727	.004
Within Groups	26958.829	10	2695.883		
Total	110287.778	14			

P<0.05 menunjukkan adanya perbedaan antara kelompok perlakuan

Multiple Comparisons

Dependent Variable: KELOMPOK LDH

Tukey HSD

(I) KELOMPOK PERLAKUAN	(J) KELOMPOK PERLAKUAN	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
NORMAL	NEGATIF	-172.89667*	42.39405	.015	-312.4190	-33.3744
	KHLE 250 mg/Kg	-157.56333*	42.39405	.026	-297.0856	-18.0410
	KHLE 500 mg/Kg	-26.83000	42.39405	.966	-166.3523	112.6923
	KHLE 750 mg/Kg	-16.42667	42.39405	.994	-155.9490	123.0956
NEGATIF	NORMAL	172.89667*	42.39405	.015	33.3744	312.4190
	KHLE 250 mg/Kg	15.33333	42.39405	.996	-124.1890	154.8556
	KHLE 500 mg/Kg	146.06667*	42.39405	.039	6.5444	285.5890
	KHLE 750 mg/Kg	156.47000*	42.39405	.027	16.9477	295.9923
KHLE 250 mg/Kg	NORMAL	157.56333*	42.39405	.026	18.0410	297.0856
	NEGATIF	-15.33333	42.39405	.996	-154.8556	124.1890
	KHLE 500 mg/Kg	130.73333	42.39405	.069	-8.7890	270.2556
	KHLE 750 mg/Kg	141.13667*	42.39405	.047	1.6144	280.6590
KHLE 500 mg/Kg	NORMAL	26.83000	42.39405	.966	-112.6923	166.3523
	NEGATIF	-146.06667*	42.39405	.039	-285.5890	-6.5444
	KHLE 250 mg/Kg	-130.73333	42.39405	.069	-270.2556	8.7890
	KHLE 750 mg/Kg	10.40333	42.39405	.999	-129.1190	149.9256
KHLE 750 mg/Kg	NORMAL	16.42667	42.39405	.994	-123.0956	155.9490
	NEGATIF	-156.47000*	42.39405	.027	-295.9923	-16.9477
	KHLE 250 mg/Kg	-141.13667*	42.39405	.047	-280.6590	-1.6144
	KHLE 500 mg/Kg	-10.40333	42.39405	.999	-149.9256	129.1190

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

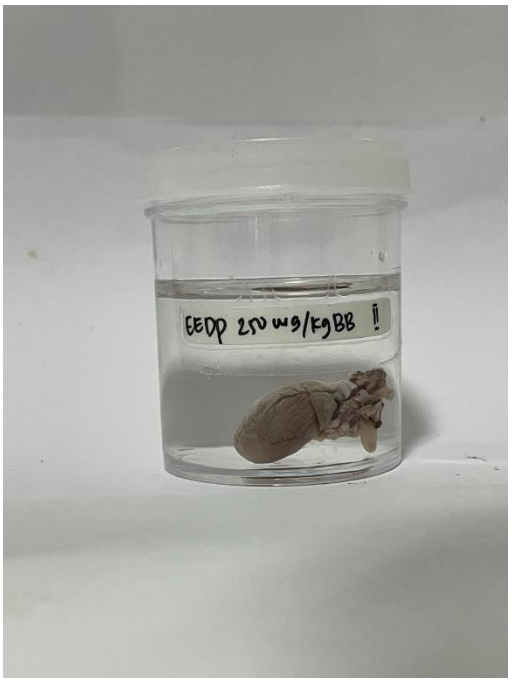
Lampiran 6. Dokumentasi penelitian

Gambar 5. Penyimpanan hewan coba selama penelitian

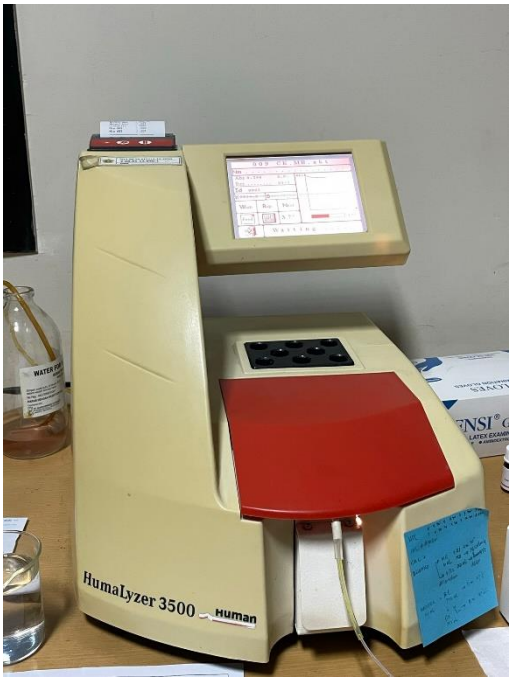
Gambar 6. Ekstrak kental kleinhovia hospita

Gambar 7. Proses pembedahan hewan coba

Gambar 8. Hewan coba yang telah dibedah dan diambil jantungnya.



Gambar 9. Organ jantung tikus yang akan dihistopatologi



Gambar 10. Humalyzer 3500 yang digunakan untuk mengukur biomarker jantung.