DAFTAR PUSTAKA

Almuktisi, F., Astuti, I. Y., &Setiawan, .2010. Profil disolusi in vitro tablet levofloksasin generik dan levofloksasin non generik. *pharmacy*, 7 (1), 35-45.

Ayala A, Muñoz M, Argüelles S. 2014. Lipid peroxidation: production, metabolism, and signaling mechanisms of Malondialdehyde and 4-Hydroxy-2-Nonenal. *Oxid Med Cell Longev*; 112: 21-8.

Barhoma, R. A. E. 2018. The role of eugenol in the prevention of chromium-induced acute kidney injury in male albino rats. *Alexandria Journal of Medicine*, *54*(4), 711–715.

Barnett, S., Anthony. 2002. *The Story of Rats: Their Impact on Us and Our Impact on Them*. Crows Nest NSW: Allen & Unwin

Basch, E., Gasparyan, A., Giese, N., Hashmi,S., Miranda, M., Sollars,D., Seamon, E., Tanguay, S., Ulbricht, C., Varghese, M., Vora, M., Weissner, W. 2008. Clove (*Eugenia aromatica*) and Clove Oil (*Eugenol*) Natural Standard Monograph. *Journal of Dietary Supplements, Vol. 5(2).*

Bezerra, D.P., Militão, G.C.G., De Morais, M.C., De Sousa, D.P., 2017. The dual antioxidant/prooxidant effect of eugenol and its action in cancer development and treatment. *Nutrients.* 9, 1–15.

Birben E, Saahiner UM, Sackesen C, Erzurum S, Kalayci O. 2012. Oxidative stress and antioxidant defense. *WAO Journal*; 5: 9–19.

Branislava Jakovljevic, Aleksandra Novakov-Mikic, Snezana Brkic, Mirjana A. Bogavac, Slavica Tomic , Vera Miler. 2012. Lipid peroxidation in the first trimester of pregnancy.*The Journal of Maternal-Fetal and Neonatal Medicine*, 25(8): 1316–1318)

Burcham, P.C., 1998. Genotoxic lipid peroxidation products : their DNA damaging properties and role in formation of endogenous DNA adducts. *Mutagenesis*. 13: 287-305

Capeyron MFM, Julie C, Eric B, Jean P, Jean MR, Piere B, Claude LL, Benard D. 2002. A diet cholesterol and deficient in vitamin E induces lipid peroxidation but does not enhace antioxidant enzyme expression in rat liver. *The Journal of Nutritional Biochemistry* 13: 296-301

Chang, S.P., Lee,H.Z., Lai, C.C., Tang, H.J. 2019. The efficacy and safety of nemonoxacin compared with levofloxacin in the treatment of communityacquired pneumonia: a systemic review and metaanalysis of randomized controlled trials. *Infection and Drug Resistance:12 433–438*

Djabir, Y. Y., Sumarheni., Aminullah., Mufidah, Yusuf, P. M., & Febrianty, M. A. 2020. Clove oil (*Oleum caryophylli*) effects on liver and renal biomarkers in rats treated with toxic dose of isoniazid-rifampicin. T*he 4th International Conference on Science*, Makassar: 22-23 August 2020.

Departemen Kesehatan Republik Indonesia. 1995. Farmakope Indonesia Edisi IV. J*akarta Direktorat Jenderal Pengawasan Obat dan Makanan*, Jakarta.

Devi,K.V., Nisha, S.A., Sakthivel, R., Pandian, S.K. 2010. Eugenol (An Essential Oil Of Clove) Acts As An Antibacterial Agent Against *Salmonella* Typhi By Disrupting The Cellular Membrane. *Journal of Ethnopharmacology 130 (2010) 107–115*

Francisco, D., Fernandes, C.R., Oliveira, W.P., 2014. Clove (Syzygium aromaticum): a precious spice. *Asian Pacific Journal of Tropical Biomedicine*; 4(2): 90-96

Fiqardina, A. 2020. *Potensi Penggunaan Minyak Cengkeh (Oleum caryophyll) Terhadap Toksisitas Levofloksasin*. Tesis Tidak diterbitkan. Makassar. Fakultas Farmasi Universitas Hasanuddin.

Fiqardina, A. , Djabir, Y.Y. , Santoso, A., Salsabil,S.N., Ismail. 2022. The Nephroprotective Effect of Clove Oil (Oleum caryophylli) Against Levofloxacin Toxicity in Rats. *Iranian Journal of Toxicology*. 16(1):27-34.

Fish, D.N., and Chow, A.T. 1997. The Clinical Pharmacokinetics of Levofloxacin. *Clin. Pharmacokinet* 32(2): 101-119.

Garud, M. S., & Kulkarni, Y. A. 2017. Eugenol ameliorates renal damage in streptozotocin-induced diabetic rats. *Flavour and Fragrance Journal*, *32*(1), 54–62.

Gaspar, E.M., 2018. Volatile Composition and Antioxidant Properties of Clove Products. *Biomed. J. Sci. Tech. Res.* 9, 7270–7276.

Guan, W.,Li S., Yan, R., Tang, S., and Quan, C. 2007. Comparison of Essential Oil of Clove Bud Extracted with Supercritical Carbon Dioxide and Other Three Traditioan Extraction Method. *Food.Chem*. 101:1558-1564.

Gülçin, I., Elmastaş, M., & Aboul-Enein, H. Y. 2012. Antioxidant activity of clove oil - A powerful antioxidant source. *Arabian Journal of Chemistry*, *5*(4), 489–499.

Hadi, S., 2012. Pengambilan Minyak Atsiri Bunga Cengkeh (*Clove Oil*)

Menggunakan Pelarut N-Heksana dan Benzena. *Jurnal Bahan Alam Terbarukan* Vol. 1

Hapsoh dan Hasana, Y., 2011. *Budidaya Tanaman Obat dan Rempah*. USU Press. Medan. 89-61.

Hastuti, N.A.R., Winarsih, S., Dwijayasa, P.M., 2018, Pengaruh Ekstrak Air Daun Kelor Terhadap Kadar Leptin dan Malondialdehyde Lemak Visceral Tikus Wistar yang Dipapar Depo Medroxyprogesterone Acetate. *Journal of Issues in Midwifery,* Vol. 2 No. 1, 38-46

Ito, T., Yano, I., Masuda, S., Hashimoto Y., Inui, K. 1999. Distribution Characteristics of Levofloxacin and Grepaloxacin in Rat Kidney. *Pharmaceutical Research,* Vol. 16, No. 4.

Janero DR. 1990. Malondialdehyde and thiobarbituric acid-reactivity as diagnostic indices of lipid peroxidation and peroxidative tissue injury. *Free Radic Biol Med*; 9: 515-40

Julianto, Tatang S. 2016. *Minyak Atsiri Bunga Indonesia*. Deepublish. Yogyakarta.

Kang,Y. A., Shim, T. S., Koh, W. J., Lee, S. H., Lee, C. H., Choi, J. C.,et al. 2016. Choice between levofloxacin and moxifloxacin and multidrug-resistant tuberculosis treatment outcomes. *Annals of the American Thoracic Society*, *13*(3), 364–370.

Kirnantoro., Maryana. 2021, *Anatomi Fisiologi.* Pustaka Baru Press. Yogyakarta.

Kemenkes RI. 2013. Infodatin Tuberkulosis. *Kementerian Kesehatan RI*, 1–8.

Kocyigit, I., Dortdudak, S., Sipahioglu, M., Unal, A., Yucel, H.E., 2012. Levofloxacin-Induced Delirium : Is It a Dangerous Drug in Patients with Renal Dysfunction Renal Failure, 34(5): 634–636.

Kurniawan, M.F., Sugihartini2, N., Yuwono, T. 2018. Permeabilitas dan Karakteristik Fisik Emulgel Minyak Atsiri Bunga Cengkeh dengan Penambahan Enhancer. *Medical Sains* Vol. 3 No.1.

Lee, J., Lee, C. H., Kim, D. K., Yoon, H. Il, Kim, J. Y., Lee, S. M., et al. 2011.Retrospective comparison of levofloxacin and moxifloxacin on multidrug-resistant tuberculosis treatment outcomes. *Korean Journal of Internal Medicine*, *26*(2), 153–159. McCord JM. The Evolution of Free Radikals and Oxidative Stress. 2000. *The American Journal of Medicine.*108(8): 652-659

Murray, R. 2003. *Biokimia Harper* ed. 25. Jakarta: EGC

Musta, R., Nurliana, L. 2019. Studi Kinetika Efektifitas Minyak Daun Cengkeh (*Syzigium aromaticum*) Sebagai Antifungi. *Indo. J. Chem. Res.*

Nelson JM, Chiller TM, Powers JH, Angulo FJ. 2007. Fluoroquinoloneresistant Campylobacter species and the withdrawal of fluoroquinolones from use in poultry: a public health success story. *Clin. Infect. Dis., 44 (7): 977-980*.

Ningsih, U.Istiani, Susilawati,Endang. 2017. Physical Quality Of Suspension Oral Sweet Potato Purple (Ipomoe Batatas L.) With Suspending Agent Cmc Na (Carboxymethyl Cellulose Natrium) 0.5% , 0.75%, 1%. Malang: Akademi Farmasi Putra Indonesia Malang.

Nurdjnnah, N. 2004. Diversifikasi Penggunaan Cengkeh. *Balai Besar Penelitian dan Pengembangan Pasca Panen Pertanian*, *3*(2), 61–70.

Nurfadillah. 2020. *Uji Efektivitas Minyak Jintan Hitam (Nigella sativa L.) dalam Melindungi Hepatotoksisitas pada TIkus (Rattus norvegicus) Akibat Pemberian Levofloksasin Secara Subkronik*. Tesis tidak diterbitkan. Fakultas Farmasi Univeristas Hasanuddin.

Nurwahida. 2019. *Pengaruh Pemberian Minyak Cengkeh (Oleum caryophylli) Terhadap Perubahan Histologi Hati Tikus (Rattus norvegicus) yang Diinduksi Isoniazid-Rifampisin.* Skripsi tidak diterbitkan. Fakultas Farmasi Univeristas Hasanuddin

Owoade, A.O., Airaodion, A.I, Adetutu, A., Akinyomi, O.D. 2018. Levofloxacin-induced dyslipidemia in male albino rats. *Asian Journal of Pharmacy and Pharmacology; 4(5): 620-629*

Papich, M.G. 2020. *Papich Handbook of Veterinary Drugs* Edisi 5. Elsevier Health Sciences.

Prianto, H., Retnowati, R., dan Suswono, U.P. 2013. Isolasi dan Karakterisasi dari Minyak Bunga Cengkeh (Syzigium aromaticum) kering Hasil Destilasi Uap. *Student Journal*. 1.(2):269-275

Rawi, S. M., Mourad, I. M., Arafa, N. M. S., & Alazabi, N. I. 2011. Effect of ciprofloxacin and levofloxacin on some oxidative stress parameters in brain regions of male albino rats. *African Journal of Pharmacy and Pharmacology*, *5*(16), 1888–1897.

Romero, R.C., Ramasamy, K., Meng, L.S., ; Majeed, A.B.A., Agatonovic-Kustrin, S. 2020. HPTLC based approach for bioassay-guided evaluation of antidiabetic and neuroprotective effects of eight essential oils of the Lamiaceae family plants*. Journal of Pharmaceutical and Biomedical Analysis.* 178, 112909*.*

Revianti S, Widyasri P, dan Rima PS. 2007.Peranan Ekstrak Buah Naga (Hylocereus Undatus (Haw.) sebagai Hepatoprotektor. Denta: *Jurnal Kedokteran Gigi*.1(2): 75-80

Reviono, Kusnanto, P., Eko, V., Pakiding, H., & Nurwidiasih, D. 2014. Multidrug Resistant Tuberculosis (MDR-TB): Tinjauan Epidemiologi dan Faktor Risiko Efek Samping Obat Anti Tuberkulosis. *Majalah Kedokteran Bandung*, *46*(4), 189–196.

Sadgala, Y. 2010. *Merawat Hamster Si Imut yang Menggemaskan.* 2020. Agromedia. Hal.6.

Said, M. M. 2011. The protective effect of eugenol against gentamicin-induced nephrotoxicity and oxidative damage in rat kidney. *Fundamental and Clinical Pharmacology*, *25*(6), 708–716.

Samma, J. 2016. *Efek Pemberian Adenosine Terhadapat Penghambatan Lipid Peroksidase Akibat Pemakaian Doksorubisin Pada Tikus Putih (Rattus norvegicus)*. Skripsi tidak diterbitkan. Makassar. Fakultas Farmasi Universitas Hasanuddin.

Santos, A. L., Chierice, G. O., Alexander, K. S., Riga. A., Matthews, E. 2009. Characterization of the raw essential oil eugenol extracted from Syzygium aromaticum L. *J Therm Anal Calorim (2009) 96:821–825*

Setyawati, H., Sumarsih, S., Ayuningtyas, S. 2017. Sintesis dan Karakterisasi Senyawa Kompleks Zn(Ii)-EDTA Sebagai Senyawa Antialga Pada Cooling Water Industri. *Jurnal Kimia Riset, Volume 2 No. 1,* Hal. 43-50.

Shakti, S. W., Ismail, A., & Bambangwitjahyo, R. B. 2019. Pengaruh Pemberian Ekstrak Temulawak (Curcuma Xanthorrhiza) Dosis Bertingkat Terhadap Gambaran Mikrokropis Ginjal Mencit Balb/C Jantan Yang Di Induksi Rifampisin. *Diponegoro Medical Journal (Jurnal Kedokteran Diponegoro)*, *8*(3), 1050–1060.

Sharma, J.N., Srivastava, K.C., Gan, E.K. 1994. Suppresive Effects of Eugenol and Ginger Oil on Arthritic Rats. *Pharmacology 49: 314-318*

Suharman, 2020. *Tanaman Potensial Berkhasiat Obat Cengkeh Temulawak Jahe Kunyit Kencur Serai*. Deepublish. Yogyakarta.

Sunaryo, E.S., 2015, *Minuman Tradisional Penguat Kekebalan Tubuh*, ElexMedia Komputindo, Jakarta.

Talla V, dan Veeraredy PR. 2011. Oxidative Stress Induced by Fluoroquinolones On Treatment For Complicated Urinary Tract Infections In Indian Patient. *J Young Pharm*, 3(4) : 304-9

Tjay, T. H., & Rahardja, K.2010. *Obat Obat Penting* (Edisi VI). Jakarta: PT. Elex`Media Komputindo.

Tulungen, F.R. 2019. Cengkeh dan Manfaatnya Bagi Kesehatan Manusia Melalui Pendekatan *Competitive Intelligence*. *Jurnal Biofarmasetikal Tropis. 2 (2), 158-169*

Villegas, L., Otero, L., Sterling, T. R., Huaman, M.A., Stuyft, P. V. D., Gotuzzo, E., Seas, C. 2016. Prevalance Risk Factors, and Treatment Outcomes of Isoniazid- and Ripamficin- Mono-Resistant Pulmonary Tuberculosis In Lima, Peru. *PLoS ONE 11(4):e0152933.*

Wallis. T.E. 2005. *Text Book of Pharmacognosy*. CBS Publisher. New Delhi. India. Edisi ke V.

Wulandari, L. 2011. *Kromatografi Lapis Tipis.* Taman Kampus Presindo. Jember.

Zaetun, S., Kusuma Dewi, L. B., & Rai Wiyadna, I. B. 2019. Profil Kadar Mda (Malondialdehide) Sebagai Penanda Kerusakan Seluler Akibat Radikal Bebas Pada Tikus Yang Diberikan Air Beroksigen. *Jurnal Analis Medika Biosains (JAMBS)*, *5*(2), 79.

Lampiran 1

Sertifikat Minyak Cengkeh

Happy Green

Importer of Essential Oils, Absolutes, and Carrier Oils
Jakarta, Indonesia Customessentialoil@gmail.com Phone 081295037988

Certificate of Analysis

Product Name	:	**CLOVE BUD OIL**
Botanical Name	:	*Syzygium aromaticum*
Product Code	:	150026
Batch Number	:	200224/177110
Appearance	:	Mobile Liquid
Color	:	Yellow to light brown
Odor	:	Sweet, spicy, eugenol, aromatic, clove, woody
Production Date	:	February 24, 2020
Shelf Life	:	24 Months in fully sealed containers
Quantity of Purchased	:	1 Kg
Packaging	:	**1 Bottle @1 Kg**

Technical Analysis:

Test Item	Specification	Result
Density (@20°C)	1.0588 – 1.0892	1.0740
Specific Gravity (@20°C)	1.0607 – 1.0911	1.0759
Refractive Index (@20°C)	1.5011 – 1.5315	1.5163
Optical Rotation (°)	(-1.5) – (0)	(-0.85)
Eugenol Content (GC)	Min 80%	82.54%
Eugenol Acetat Content (GC)	Min 7%	7.41%
Solubility	Soluble in alcohol and oils, Insoluble in Water	Conform to standard
Fatty Oil	Negative	Passed
Mineral Oil	Negative	Passed

Storage Condition : Store unopened containers with temperature between 10°C to 25°C

This document has been electronically produced and does not require any signature

DISCLAIMER:
The information contained in this Certificate of Analysis is obtained from current and reliable sources. The information is correct at the time of testing, and the results may vary depending on batch and time of testing. Happy Green shall not be liable for any errors or delays in the content, or for any actions taken in reliance thereon. The information remains property of Happy Green and should not be propagate or used for any other purpose.

Lampiran 2

Kode Etik

KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI
UNIVERSITAS HASANUDDIN FAKULTAS KEDOKTERAN
KOMITE ETIK PENELITIAN KESEHATAN
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 : 395/UN4.6.4.5.31/ PP36/ 2021

Tanggal: 11 Juni 2021

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

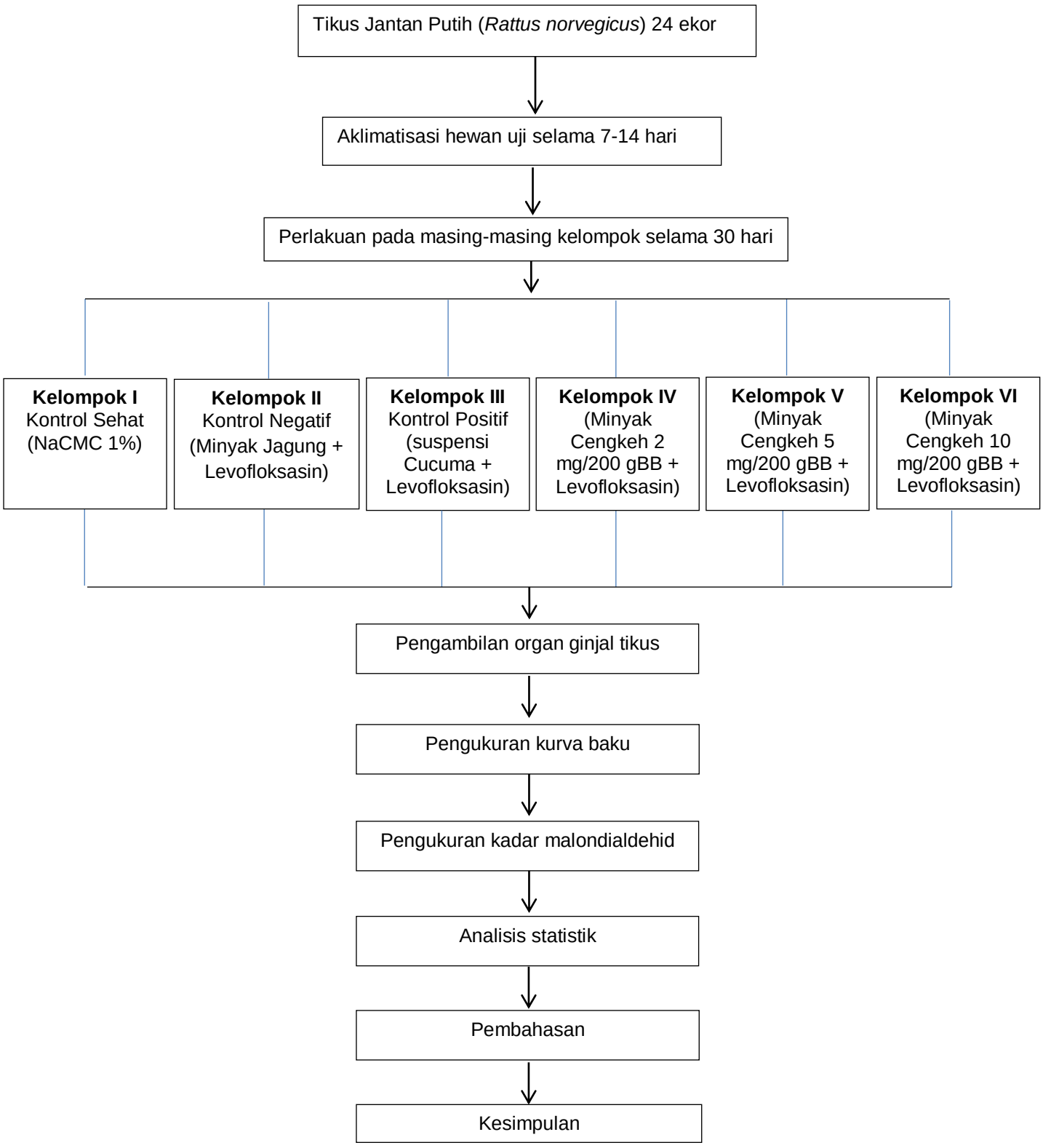
No Protokol	UH21040279	No Sponsor Protokol	
Peneliti Utama	**Syafira Nurul Salsabil**	Sponsor	
Judul Peneliti	EVALUASI EFEK PROTEKTIF MINYAK CENGKEH (Oleum caryophylli) TERHADAP PENINGKATAN KADAR MALONDIALDEHID GINJAL TIKUS YANG DIBERI LEVOFLOKSASIN		
No Versi Protokol	**1**	Tanggal Versi	**26 April 2021**
No Versi PSP		Tanggal Versi	
Tempat Penelitian	**Laboratorium Fakultas Farmasi Universitas Hasanuddin Makassar**		
Jenis Review	☐ Exempted ☒ Expedited ☐ Fullboard Tanggal	Masa Berlaku **11 Juni 2021** sampai **11 Juni 2022**	Frekuensi review lanjutan
Ketua Komisi Etik Penelitian Kesehatan FKUH	Nama **Prof.Dr.dr. Suryani As'ad, M.Sc.,Sp.GK (K)**	Tanda tangan	
Sekretaris Komisi Etik Penelitian Kesehatan FKUH	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

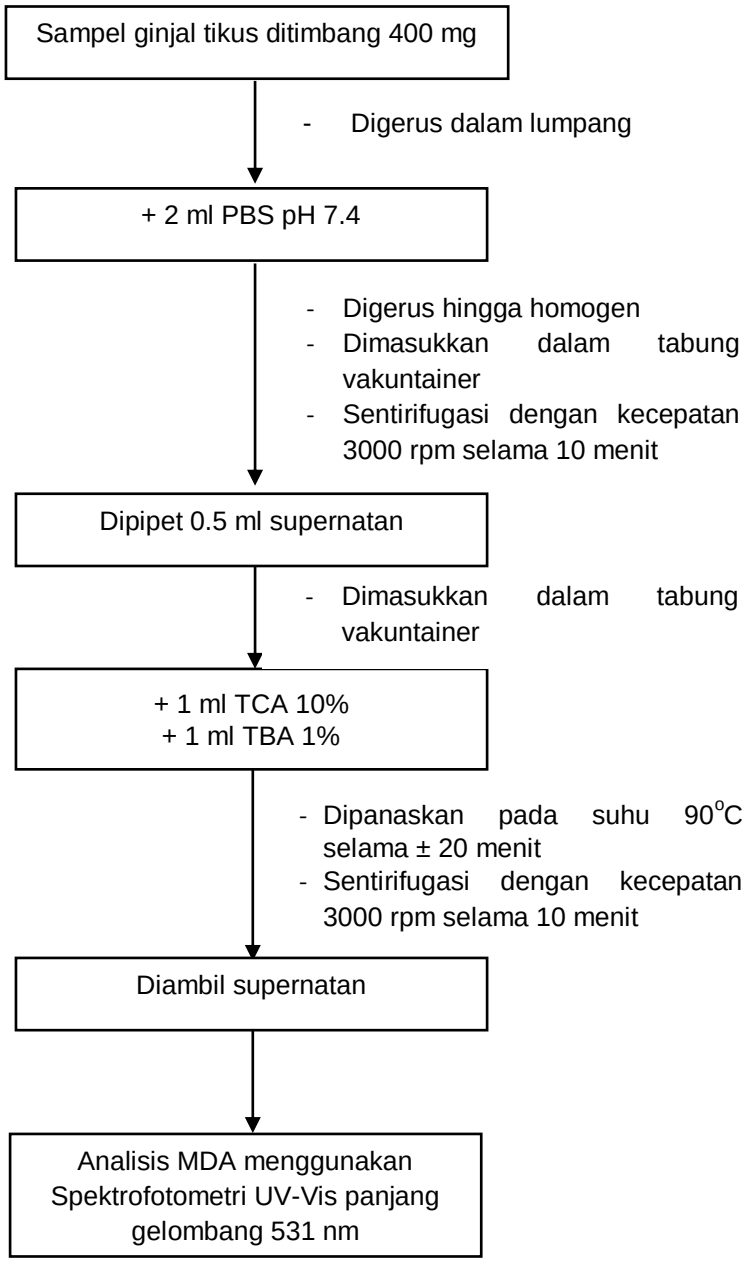
Lampiran 3

Skema Kerja



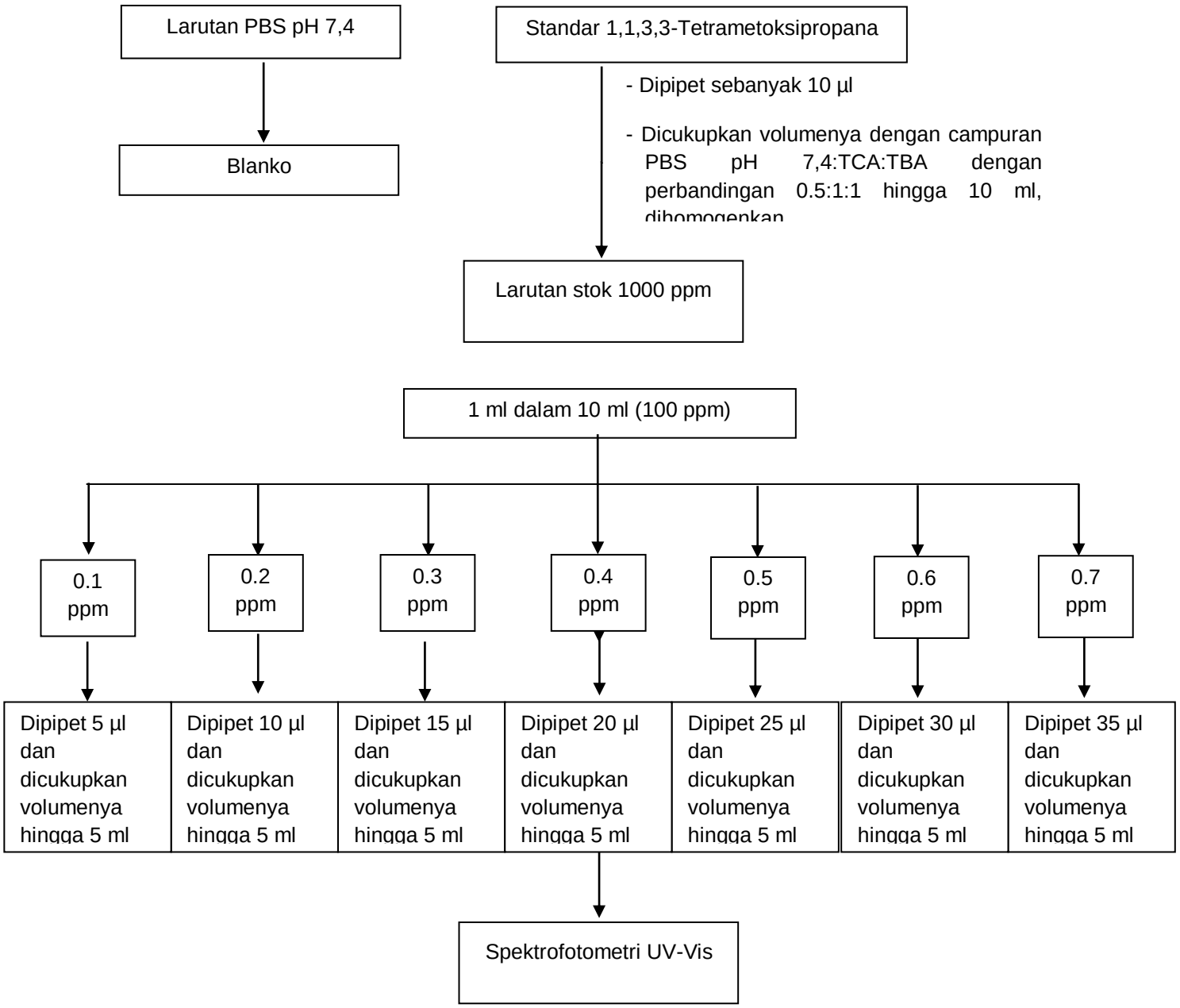
Lampiran 4

Pengukuran Kadar Malondialdehid (MDA)



Lampiran 5

Pengukuran Kurva Baku



Lampiran 6

Perhitungan Dosis

1. Levofloksasin

Dosis terapi levofloksasin pada manusia yang digunakan pada penelitian ini 15 mg/kgBB.

Dosis equivalen hewan = dosis manusia × faktor konversi

= 15 mg/kgBB × 6,2

= 93 mg/kgBB

= 18,6 mg/200 gBB

Dosis hitung levofloksasin $= \frac{Dosis\ Levofloksasin}{Volume\ Pemberian} x volume\ labu\ tentukur$

$= \frac{18{,}6\ mg/200\ gBB}{2\ ml} \times 50\ ml$

= 465 mg per 50 ml

Bobot serbuk levofloksasin yang ditimbang

$= \frac{Dosis\ Hitung\ Levofloksasin}{Bobot\ Etiket}$ ×Bobot rata-rata(20 tablet)

$= \frac{465\ mg}{500\ mg} \times 555.56\ mg$

= 516,67 mg

2. Minyak Cengkeh

Dosis minyak cengkeh secara oral pada manusia adalah 250 mg/kgBB sehingga dikonversi sesuai bobot tikus 200 gram dan dibagi dalam beberapa kelompok sebagai berikut :

a. 2 mg/200 gBB;

b. 5 mg/200 gBB;

c. 10 mg/200 gBB

3. Curcuma®FCT

Setiap tablet curcuma®FCT mengandung ekstrak *Curcuma xanthorrhiza Rhizoma* sebanyak 20 mg.

Dosis curcuma sebagai protektor adalah 6,17 mg/kgBB

Untuk tikus 200 g = 6,17 mg/kg × 0,2 kg

= 1,23 mg/200 gBB

Dosis hitung levofloksasin $= \frac{Dosis\ curcuma}{Volume\ Pemberian}\ x\ volume\ labu\ tentukur$

$= \frac{1{,}23\ mg/200\ gBB}{2\ ml} \times 50\ ml$

= 30,85 mg per 50 ml

Bobot serbuk tablet curcuma®FCT yang ditimbang

$= \frac{Dosis\ Hitung\ curcuma}{Bobot\ Etiket}$ × Bobot rata-rata (20 tablet)

$= \frac{30{,}85\ mg}{20\ mg} \times 414\ mg$

= 638,60 mg

Lampiran 7

Perhitungan Stok Pengenceran Minyak Cengkeh

Konversi mg ke satuan mL dengan menghitung bobot jenis minyak

$$V = \frac{Bobot\ minyak}{Bobot\ jenis\ minyak}$$

$$V = \frac{1\ mg}{1062\ mg/mL}$$

= 0,0009 mL → 1 µl

Jadi, 1 mg minyak cengkeh sama dengan 1 µl

1. Dosis 2 mg/200 gBB = 10 mg/kgBB

   Konsentrasi 0,1% v/v dalam labu tentukur 50 mL

   Volume minyak cengkeh = konsentrasi × volume labu tentukur

   $= \frac{0,1}{100} \times 50\ mL$

   = 0,05 mL → 50 µl

   Untuk membuat konsentrasi 0,1% v/v dalam labu tentukur 50 mL. Maka, 50 µl minyak cengkeh dicukupkan dengan minyak jagung hingga 50 mL pada labu tentukur. Volume yang diberikan ke tikus adalah 2 ml/200 gBB setiap hari selama 30 hari.

2. Dosis 5 mg/200 gBB = 25 mg/kgBB

   Konsentrasi 0,25% v/v dalam labu tentukur 50 mL

   Volume minyak cengkeh = konsentrasi × volume labu tentukur

   $= \frac{0,25}{100} \times 50\ mL$

   = 0,125 mL → 125 µl

Untuk membuat konsentrasi 0,25% v/v dalam labu tentukur 50 mL. Maka, 125 µl minyak cengkeh dicukupkan dengan minyak jagung hingga 50 mL pada labu tentukur. Volume yang diberikan ke tikus adalah 2 ml/200 g

3. Dosis 10 mg/200 gBB = 50 mg/kgBB

   Konsentrasi 0,5% v/v dalam labu tentukur 50 mL

   Volume minyak cengkeh = konsentrasi × volume labu tentukur

$$= \frac{0{,}5}{100} \times 50\ mL$$

$$= 0{,}25\ \text{mL} \rightarrow 250\ \mu\text{l}$$

Untuk membuat konsentrasi 0,5% v/v dalam labu tentukur 50 mL. Maka, 250 µl minyak cengkeh dicukupkan dengan minyak jagung hingga 50 mL pada labu tentukur. Volume yang diberikan ke tikus adalah 2 ml/200 g

Lampiran 8

Komposisi Reagen Anisaldehid-asam sulfat

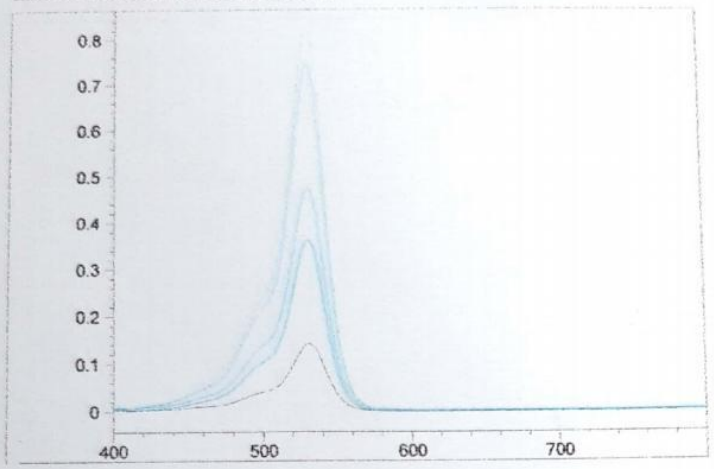
Larutan segar terdiri atas campuran :

Anisaldehid P	0,5 mL
Asam asetat glasial P	10 mL
Metanol P	85 mL
Asam sulfat P	5 mL

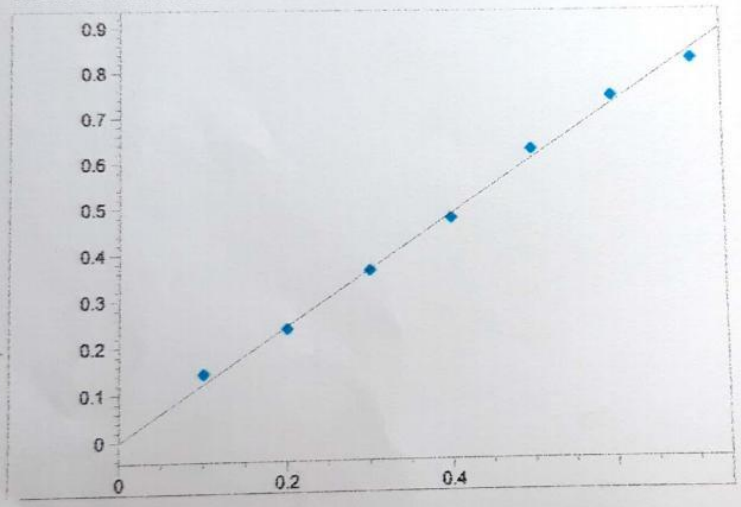
Lampiran 9

Hasil Pengukuran Absorbansi Kurva Baku

Processed Standard Spectra



Calibration Curve



Calibration Table

#	Standard Name	Concentration(ppm)	Abs<531nm>	%Error
1	0.1 ppm	0.10000	0.14159	-14.37
2	0.2 ppm	0.20000	0.23585	2.81
3	0.3 ppm	0.30000	0.36118	0.70
4	0.4 ppm	0.40000	0.47404	2.30
5	0.5 ppm	0.50000	0.62569	-3.12
6	0.6 ppm	0.60000	0.74335	-2.14
7	0.7 ppm	0.70000	0.82531	2.83

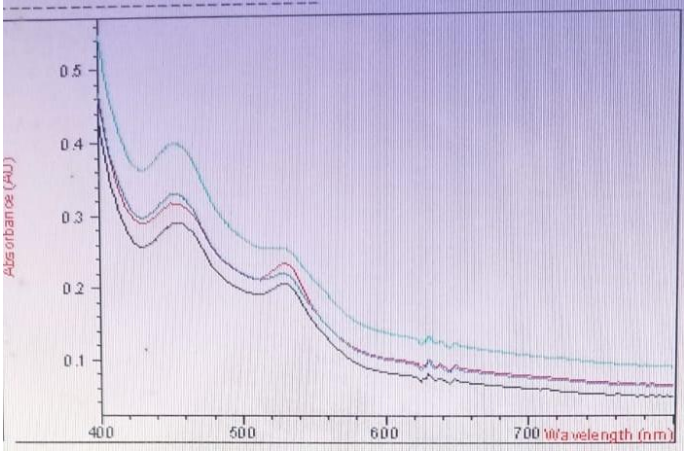
Lampiran 10

Hasil Pengukuran Absorbansi Tiap Kelompok Perlakuan

ardcopy view

Date 1/4/1980 Time 00:07:55 Page 1 of

rocessed Standard Spectra



Calibration Table (*)

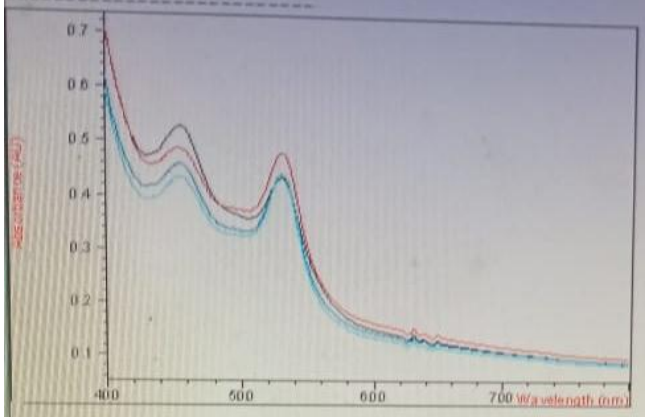
#	Standard Name	Concentration(ppm)	Abs<531nm>	%Error
1	K1A	0.00000	0.20510	***
2	K1B	0.00000	0.23312	***
3	K1C	0.00000	0.21804	***
4	K1D	0.00000	0.25299	***

*** End Hardcopy view ***

Hardcopy view

Date 1/4/1980 Time 00:44:00 Page 1 of 1

Processed Standard Spectra



Calibration Table (*)

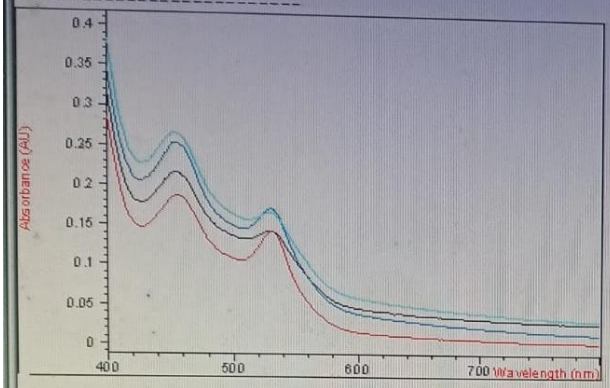
#	Standard Name	Concentration(ppm)	Abs<531nm>	%Error
1	K2A	0.00000	0.43578	***
2	K2B	0.00000	0.48190	***
3	K2C	0.00000	0.44171	***
4	K2D	0.00000	0.44166	***

*** End Hardcopy view ***

Hardcopy view

Date 1/4/1980 Time 00:52:27 Page 1 of 1

Processed Standard Spectra

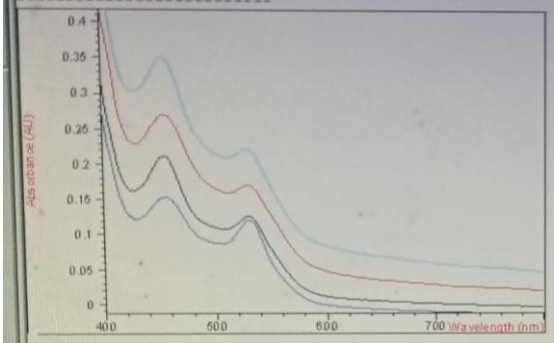


Calibration Table (*)

#	Standard Name	Concentration(ppm)	Abs<531nm>	%Error
1	K3A	0.00000	0.14327	***
2	K3B	0.00000	0.14254	***
3	K3C	0.00000	0.17155	***
4	K3D	0.00000	0.16655	***

*** End Hardcopy view ***

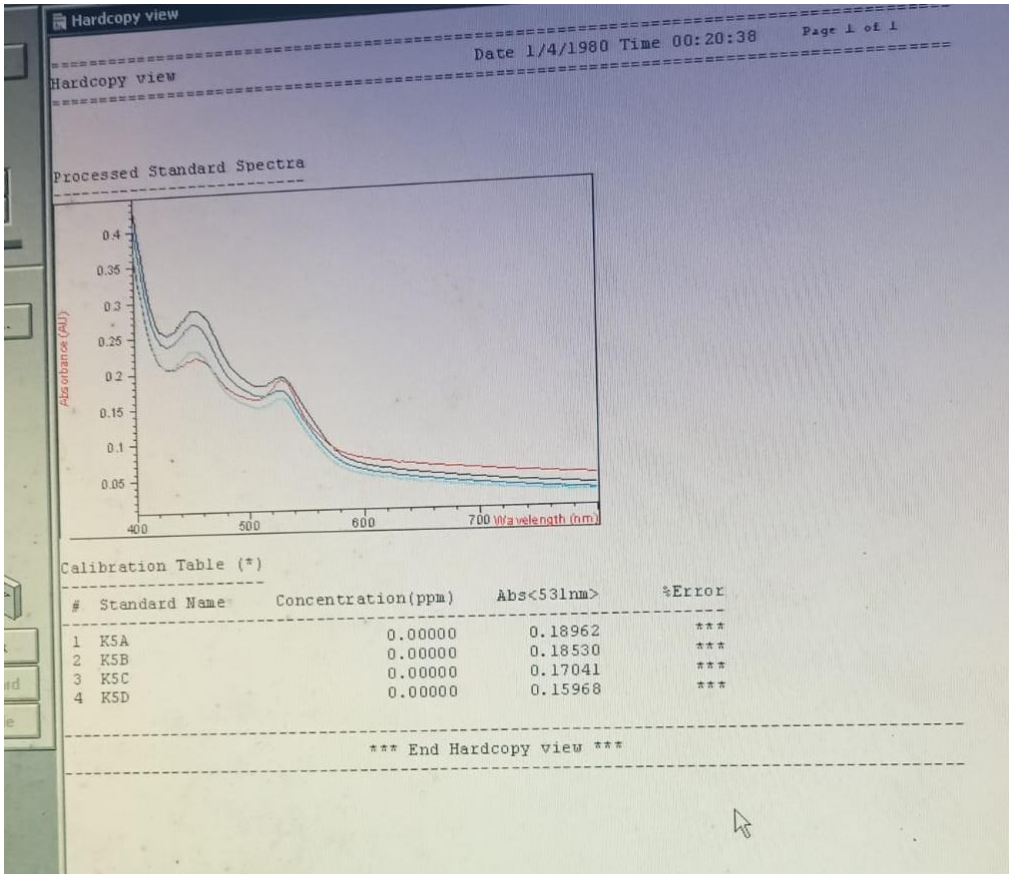
Processed Standard Spectra



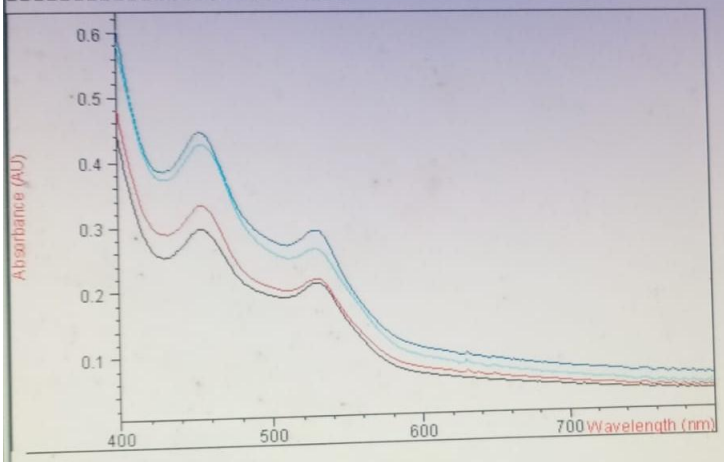
Calibration Table (*)

#	Standard Name	Concentration(ppm)	Abs<531nm>	%Error
1	K4A	0.00000	0.12633	***
2	K4B	0.00000	0.17097	***
3	K4C	0.00000	0.12169	***
4	K4D	0.00000	0.22143	***

*** End Hardcopy view ***


Hardcopy view
Date 1/4/1980 Time 00:20:38
Page 1 of 1
Hardcopy view
Processed Standard Spectra
Absorbance (AU)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
400
500
600
700 Wavelength (nm)
Calibration Table (*)
Standard Name Concentration(ppm) Abs<531nm> %Error
1 K5A 0.00000 0.18962 ***
2 K5B 0.00000 0.18530 ***
3 K5C 0.00000 0.17041 ***
4 K5D 0.00000 0.15968 ***
*** End Hardcopy view ***

Processed Standard Spectra



Calibration Table

#	Standard Name	Concentration(ppm)	Abs<531nm>	%Error
1	K6A	0.00000	0.21218	***
2	K6B	0.00000	0.21829	***
3	K6C	0.00000	0.29343	***
4	K6D	0.00000	0.26363	***

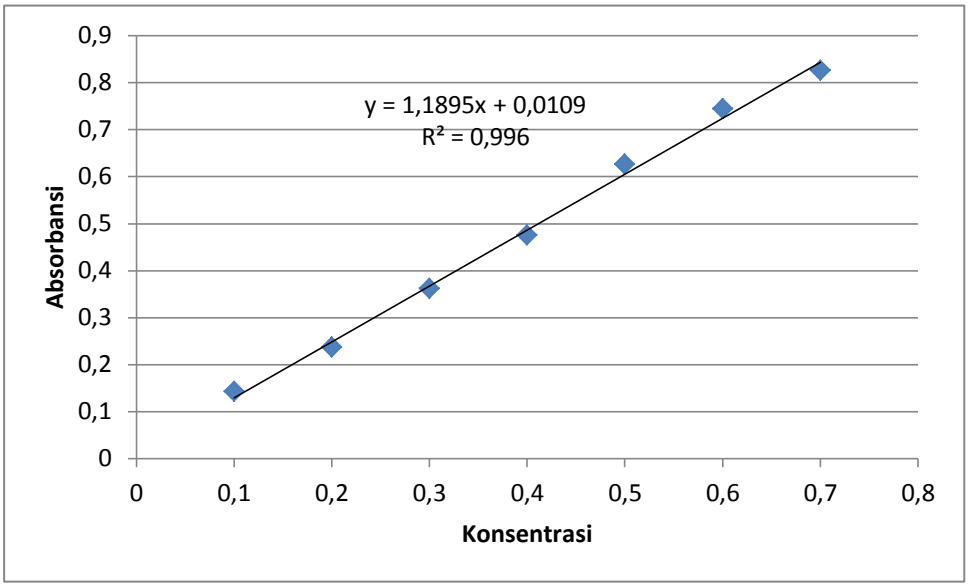
*** End Hardcopy view ***

Lampiran 11

Grafik Kurva Standar

Tabel 5. Absorbansi standar MDA pada konsentrasi 0.1-0.7 ppm

Konsentrasi (ppm)	Absorbansi
0,1	0,14159
0,2	0,23585
0,3	0,36118
0,4	0,47404
0,5	0,62569
0,6	0,74335
0,7	0,82531



Gambar 7. Grafik kurva baku pengkuran MDA

Lampiran 12

Perhitungan Nilai X dan Kadar MDA

1. Perhitungan Nilai X

Persamaan garis kurva baku;

Y = 1,1895x + 0,0109

Kelompok I

KI A

0,20510 = 1,1895x+ 0,0109

$$x = \frac{0,20510 - 0,0109}{1,1895}$$

x = 0,16

KI B

0,23312 = 1,1895x+ 0,0109

$$x = \frac{0,23312 - 0,0109}{1,1895}$$

x = 0,19

KI C

0,21804 = 1,1895x+ 0,0109

$$x = \frac{0,21804 - 0,0109}{1,1895}$$

x = 0,1

KI D

0,25299 = 1,1895x+ 0,0109

$$x = \frac{0,25299 - 0,0109}{1,1895}$$

x = 0,20

Kelompok II

KII A

0,43578 = 1,1895x+ 0,0109

$$x = \frac{0,43578 - 0,0109}{1,1895}$$

x = 0,36

KII B

0,48190 = 1,1895x+ 0,0109

$$x = \frac{0,48190 - 0,0109}{1,1895}$$

x = 0,40

KII C

0,44171 = 1,1895x+ 0,0109

$$x = \frac{0,44171 - 0,0109}{1,1895}$$

x = 0,362

KII D

0,44166 = 1,1895x+ 0,0109

$$x = \frac{0,44166 - 0,0109}{1,1895}$$

x = 0,36

Kelompok III

KIII A

0,14327 = 1,1895x+ 0,0109

$$x = \frac{0,14327 - 0,0109}{1,1895}$$

x = 0,11

KIII B

0,14254 = 1,1895x+ 0,0109

$$x = \frac{0,14254 - 0,0109}{1,1895}$$

x = 0,11

KIII C

0,17155 = 1,1895x+ 0,0109

$$x = \frac{0,17155 - 0,0109}{1,1895}$$

x = 0,14

KIII D

0,16655 = 1,1895x+ 0,0109

$$x = \frac{0,16655 - 0,0109}{1,1895}$$

x = 0,13

Kelompok IV

KIV A

0,12633 = 1,1895x+ 0,0109

$$x = \frac{0,12633 - 0,0109}{1,1895}$$

x = 0,10

KIV B

0,17097 = 1,1895x+ 0,0109

$$x = \frac{0,17097 - 0,0109}{1,1895}$$

x = 0,13

KIV C

0,12169 = 1,1895x+ 0,0109

$$x = \frac{0,12169 - 0,0109}{1,1895}$$

x = 0,10

KIV D

0,22143 = 1,1895x+ 0,0109

$$x = \frac{0,22143 - 0,0109}{1,1895}$$

x = 0,18

Kelompok V

KV A

0,18962 = 1,1895x+ 0,0109

$$x = \frac{0,18962 - 0,0109}{1,1895}$$

x = 0,15

KV B

0,18530 = 1,1895x+ 0,0109

$$x = \frac{0,18530 - 0,0109}{1,1895}$$

x = 0,15

KV C

0,17041 = 1,1895x+ 0,0109

$$x = \frac{0,17041 - 0,0109}{1,1895}$$

x = 0,13

KV D

0,15969 = 1,1895x+ 0,0109

$$x = \frac{0,15969 - 0,0109}{1,1895}$$

x = 0,13

Kelompok VI

KVI A

0,21218 = 1,1895x+ 0,0109

$$x = \frac{0,21218 - 0,0109}{1,1895}$$

x = 0,17

KVI B

0,21829 = 1,1895x+ 0,0109

$$x = \frac{0,21829 - 0,0109}{1,1895}$$

x = 0,017

KVI C

0,29343 = 1,1895x+ 0,0109

$$x = \frac{0,29343 - 0,0109}{1,1895}$$

x = 0,24

KVI D

0,26363 = 1,1895x+ 0,0109

$$x = \frac{0.26363 - 0,0109}{1,1895}$$

x = 0,21

6.2 Perhitungan Kadar MDA

Kadar MDA dihitung dengan menggunakan rumus :

Kadar MDA = (x) x D

Ket :

X = Hasil perhitungan nilai absorbansi sampel dengan persamaan kurva baku

D = Faktor Pengenceran

Kelompok I

KI A

Kadar MDA = 0,15 x 0,2
= 0,03265 µg/ml
= 32,65 ng/ml

KI B

Kadar MDA = 0,19 x 0,2
= 0,3736 µg/ml
37,36 ng/ml

KI C

Kadar MDA = 0,17 x 0,2
= 0,3483 µg/ml
= 34,83 ng/ml

KI D

Kadar MDA = 0,20 x 0,2
= 0,4070 µg/ml
= 40,70 g/ml

Kelompok II

KII A

Kadar MDA = 0,36 x 0,2
= 0,7144 µg/ml
= 71,44 ng/ml

KII B

Kadar MDA = 0,40 x 0,2
= 0,7919 µg/ml
= 79,219 ng/ml

KII C

Kadar MDA = 0,36x 0,2
= 0,7244 µg/ml
= 72,44 ng/ml

KII E

Kadar MDA = 0,3621 x 0,2
= 0,07242 µg/ml
= 72,43 ng/ml

Kelompok III

KIII A

Kadar MDA = 0,11 x 0,2
= 0,2226 µg/ml
= 22,26 ng/ml

KIII B

Kadar MDA = 0,11 x 0,2
= 0,2213 µg/ml
= 22,13 ng/ml

KIII C

Kadar MDA = 0,134x 0,2
= 0,2701 µg/ml
= 27,01 ng/ml

KIII D

Kadar MDA = 0,13 x 0,2
= 0,2617 µg/ml
= 26,17 ng/ml

Kelompok IV

KIV A

Kadar MDA = 0,10 x 0,2
= 0,1941 µg/ml
= 19,41 ng/ml

KIV B

Kadar MDA = 0,13 x 0,2
= 0,2691 µg/ml
= 26,91 ng/ml

KIV C

Kadar MDA = 0,09x 0,2
= 0,1863 µg/ml
= 18,63 ng/ml

KIV D

Kadar MDA = 0,18 x 0,2
= 0,3540 µg/ml
= 35,40 ng/ml

Kelompok V

KV A

Kadar MDA = 0,15 x 0,2
= 0,3005 µg/ml
= 30,05 ng/ml

KV B

Kadar MDA = 0,15 x 0,2
= 0,2932 µg/ml
= 29,32 ng/ml

KV C

Kadar MDA = 0,13 x 0,2
= 0,2682 µg/ml
= 26,82 ng/ml

KV D

Kadar MDA = 0,13 x 0,2
= 0,2502 µg/ml
= 25,02 ng/ml

Kelompok VI

KVI A

Kadar MDA = 0,17 x 0,2
= 0,3384 µg/ml
= 33,84 ng/ml

KVI B

Kadar MDA = 0,17 x 0,2
= 0,3396 µg/ml
= 33,96ng/ml

KVI C

Kadar MDA = 0,24 x 0,2
= 0,4750 µg/ml
= 47,50 ng/ml

KVI D

Kadar MDA = 0,21 x 0,2
= 0,4249 µg/ml
= 42,49 ng/ml

Lampiran 13

Hasil Analisis Statistik

One-Sample Kolmogorov-Smirnov Test

		Kadar MDA
N		24
Normal Parameters[a,b]	Mean	37,8317
	Std. Deviation	17,96010
Most Extreme Differences	Absolute	,221
	Positive	,221
	Negative	-,143
Kolmogorov-Smirnov Z		1,080
Asymp. Sig. (2-tailed)		,194

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Test of Homogeneity of Variances

Kadar MDA

Levene Statistic	df1	df2	Sig.
3,442	5	18	,023

ANOVA

Kadar MDA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6989,739	5	1397,948	58,619	,000
Within Groups	429,262	18	23,848		
Total	7419,001	23			

Post Hoc Test

Multiple Comparisons

Dependent Variable: Kadar MDA

Tukey HSD

(I) Perlakuan	(J) Perlakuan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Kontrol normal	Kontrol negatif	-37,49000*	3,45310	,000	-48,4641	-26,5159
	Kontrol positif	11,99250*	3,45310	,028	1,0184	22,9666
	Dosis 2 mg/200gBB	11,29750*	3,45310	,042	,3234	22,2716
	Dosis 5 mg/200gBB	8,58250	3,45310	,180	-2,3916	19,5566
	Dosis 10mg/200gBB	-3,06250	3,45310	,945	-14,0366	7,9116
Kontrol negatif	Kontrol normal	37,49000*	3,45310	,000	26,5159	48,4641
	Kontrol positif	49,48250*	3,45310	,000	38,5084	60,4566
	Dosis 2 mg/200gBB	48,78750*	3,45310	,000	37,8134	59,7616
	Dosis 5 mg/200gBB	46,07250*	3,45310	,000	35,0984	57,0466
	Dosis 10mg/200gBB	34,42750*	3,45310	,000	23,4534	45,4016
Kontrol positif	Kontrol normal	-11,99250*	3,45310	,028	-22,9666	-1,0184
	Kontrol negatif	-49,48250*	3,45310	,000	-60,4566	-38,5084
	Dosis 2 mg/200gBB	-,69500	3,45310	1,000	-11,6691	10,2791
	Dosis 5 mg/200gBB	-3,41000	3,45310	,916	-14,3841	7,5641
	Dosis 10mg/200gBB	-15,05500*	3,45310	,004	-26,0291	-4,0809
Dosis 2 mg/200gBB	Kontrol normal	-11,29750*	3,45310	,042	-22,2716	-,3234
	Kontrol negatif	-48,78750*	3,45310	,000	-59,7616	-37,8134
	Kontrol positif	,69500	3,45310	1,000	-10,2791	11,6691
	Dosis 5 mg/200gBB	-2,71500	3,45310	,966	-13,6891	8,2591
	Dosis 10mg/200gBB	-14,36000*	3,45310	,007	-25,3341	-3,3859
Dosis 5 mg/200gBB	Kontrol normal	-8,58250	3,45310	,180	-19,5566	2,3916
	Kontrol negatif	-46,07250*	3,45310	,000	-57,0466	-35,0984
	Kontrol positif	3,41000	3,45310	,916	-7,5641	14,3841
	Dosis 2 mg/200gBB	2,71500	3,45310	,966	-8,2591	13,6891
	Dosis 10mg/200gBB	-11,64500*	3,45310	,034	-22,6191	-,6709
Dosis 10mg/200gBB	Kontrol normal	3,06250	3,45310	,945	-7,9116	14,0366
	Kontrol negatif	-34,42750*	3,45310	,000	-45,4016	-23,4534
	Kontrol positif	15,05500*	3,45310	,004	4,0809	26,0291
	Dosis 2 mg/200gBB	14,36000*	3,45310	,007	3,3859	25,3341
	Dosis 5 mg/200gBB	11,64500*	3,45310	,034	,6709	22,6191

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

Homogeneous Subsets

Kadar MDA

Tukey HSD[a]

Perlakuan	N	Subset for alpha = 0.05			
		1	2	3	4
Kontrol positif	4	24,3925			
Dosis 2 mg/200gBB	4	25,0875			
Dosis 5 mg/200gBB	4	27,8025	27,8025		
Kontrol normal	4		36,3850	36,3850	
Dosis 10mg/200gBB	4			39,4475	
Kontrol negatif	4				73,8750
Sig.		,916	,180	,945	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4,000.

Lampiran 14

Dokumentasi

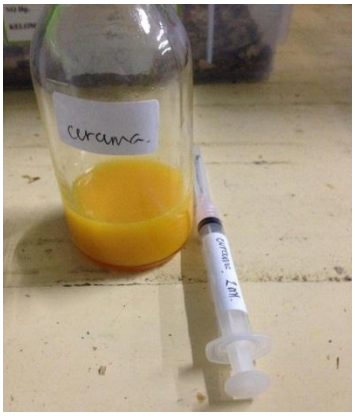
Gambar 8. Minyak cengkeh

Gambar 9. Proses uji identifikasi senyawa eugenol menggunakan KLT

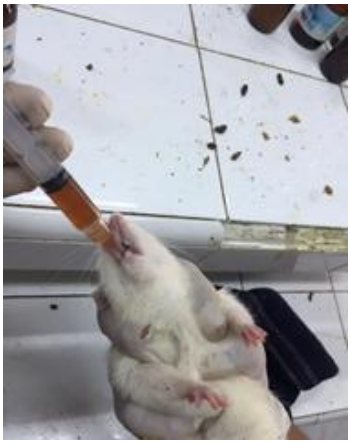
Gambar 10 . Proses Adaptasi Hewan Uji

Gambar 11. Pembuatan Suspensi NaCMC 1%

Gambar 12. Penyiapan suspensi levofloxacin



Gambar 13. Penyiapan Curcuma® FCT



Gambar 14. Pemberian larutan uji secara oral

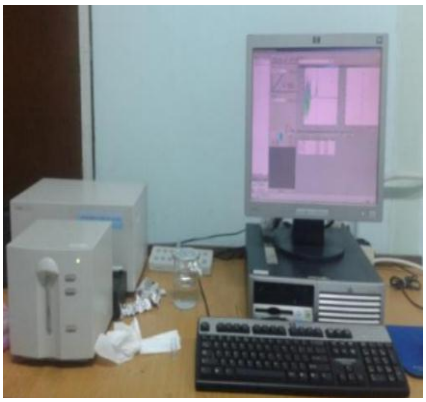
Gambar 15. Proses pembedahan dan pengambilan organ ginjal

Gambar 16. Penimbangan organ ginjal

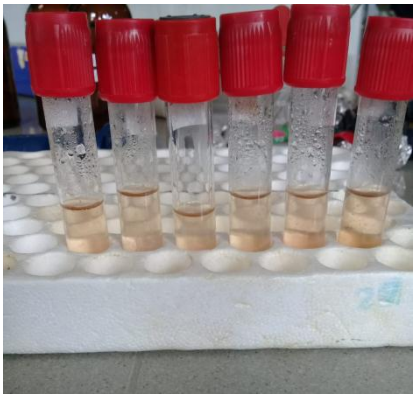
Gambar 17. Penggerusan organ ginjal dan penambahan PBS pH 7,4

Gambar 18. Proses pemanasan organ ginjal yang telah diberi TBA 1% dan TCA10%

Gambar 19. Proses sentrifuse organ ginjal



Gambar 20. Alat spektrofometri Uv-Vis



Gambar 21. Sampel organ ginjal yang akan diukur pada spektrofometri Uv-Vis

Gambar 22. Proses pembuatan kurva standar