

LAMPIRAN

Lampiran 1 Surat Persetujuan Kode Etik Hewan Percobaan



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET DAN TEKNOLOGI
UNIVERSITAS PADJADJARAN
KOMITE ETIK PENELITIAN
RESEARCH ETHICS COMMITTEE
Jl. Prof. Eyckman No. 38 Bandung 40161
Telp. & Fax. 022-2038697 email: kep@unpad.ac.id, website: kep.unpad.ac.id

No. Reg.: 2403020460

PERSETUJUAN ETIK ETHICAL APPROVAL

Nomor: 706/UN6.KEP/EC/2024

Komite Etik Penelitian Universitas Padjadjaran Bandung, telah mengkaji dengan teliti proposal penelitian yang menggunakan subjek Hewan Coba dalam penelitian yang berjudul:

The Research Ethics Committee Universitas Padjadjaran Bandung, has been thoroughly reviewed proposal for reaserch with animal subjects in reaserach entitled:

"PENGARUH EKSTRAK BUNGA ROSELLA (*HIBISCUS SABDARIFFA* L), DAUN PEGAGAN (*CENTELLA ASIATICA*) DAN RIMPANG KUNYIT (*CURCUMA DOMESTICA* VAL) TERHADAP KADAR MDA, $\text{tnf-}\alpha$, NO DAN PROFIL LIPID PADA TIKUS OBES"

Nama Peneliti Utama <i>Principal Researcher</i>	:	Daula Zahra Zinan
Pembimbing/Peneliti Lain <i>Supervisor/Other Researcher</i>	:	Dr. apt. Marita kaniawati, M.Si Dr. Apt. Agus Sulaeman, M.Si
Nama Institusi <i>Institution</i>	:	Program Sarjana Program Studi Farmasi Fakultas Farmasi Universitas Bhakti Kencana Bandung

proposal tersebut dapat disetujui pelaksanaannya.
hereby declare that the proposal is approved.



Ditetapkan di : Bandung
Issued in
Tanggal : 21-06-2024
Date

Ketua,
Chairman,



Prof. Nur Atik, dr, M.Kes., MOHRE., PhD
NIP. 19811010 200801 1 019

Keterangan/notes:

Persetujuan etik ini berlaku selama satu tahun sejak tanggal ditetapkan.

This ethical clearance is effective for one year from the due date.

Pada akhir penelitian, laporan pelaksanaan penelitian harus diserahkan ke Komite Etik Penelitian.

In the end of the research, progress and final summary report should be submitted to the Research Ethics Committee.

Jika ada perubahan atau penyimpangan protokol dan/atau perpanjangan penelitian, harus mengajukan kembali permohonan kajian etik penelitian.

If there be any protocol modification or deviation and/or extension of the study, the Principal Investigator is required to resubmit the protocol for approval.

Jika ada kejadian serius yang tidak diinginkan (KTD) harus segera dilaporkan ke Komite Etik Penelitian.

If there are Serious Adverse Events (SAE) should be immediately reported to the Research Ethics Committee

Lampiran 2 Hasil Determinasi Tanaman Bunga Rosela

HERBARIUM JATINANGOR
LABORATORIUM TAKSONOMI TUMBUHAN
JURUSAN BIOLOGI FMIPA UNPAD
 Gedung D2-212, Jl. Raya Bandung Sumedang Km 21 Jatinangor
 Telp. 089689992695, email: phanerogamae@yahoo.com

LEMBAR IDENTIFIKASI TUMBUHAN
 No.60/HB/05/2024.

Herbarium Jatinangor, Laboratorium Taksonomi Tumbuhan, Jurusan Biologi FMIPA UNPAD, dengan ini menerangkan bahwa:

Nama : Daula Zahra Zinan
 NIM/NIDN : 201FF03095
 Instansi : Universitas Bhakti Kencana.
 Lokasi : Bandung.

Telah melakukan identifikasi tumbuhan, dengan No. Koleksi: -
 Tanggal Koleksi : 25 Mei 2024.

Hasil Identifikasi

Nama Ilmiah : *Hibiscus sabdariffa* L.
 Sinonim : *Abelmoschus cruentus* (Bertol.) Walp.
 Nama Lokal : Bunga Rosela
 Suku/Famili : Malvaceae

Klasifikasi (Hirarki Taksonomi)

Kingdom : Plantae
 Divisi : Magnoliophyta
 Class : Magnoliopsida
 Ordo : Rosales
 Famili : Malvaceae
 Genus : *Hibiscus*
 Species : *Hibiscus sabdariffa* L.

Referensi:

Backer, C. A. and Bakhuizen v/d Brink R. C Jr. 1963. Flora of Java. Wolter-Noordhoff NV. Groningen.
 Cronquist, Arthur. 1981. An Integrated System of Classification of Flowering Plants. Columbia University Press. New York
 The Plant List Website Dunia Tumbuhan. <http://www.theplantlist.org/tpl1.1/record/kew-158489>.

Jatinangor, 27 Mei 2024.

Identifikator,

LABORATORIUM TAKSONOMI TUMBUHAN
 JURUSAN BIOLOGI FMIPA-UNPAD

Drs. Joko Kusumoro, M.P.
 NIP. 19600801 199101 1 001

Lampiran 3 Hasil Determinasi Tanaman Daun Pegagan

HERBARIUM JATINANGOR
LABORATORIUM TAKSONOMI TUMBUHAN
JURUSAN BIOLOGI FMIPA UNPAD
 Gedung D2-212, Jl. Raya Bandung Sumedang Km 21 Jatinangor
 Telp. 089689992695, email: phanerogamae@yahoo.com

LEMBAR IDENTIFIKASI TUMBUHAN

No.61/HB/05/2024.

Herbarium Jatinangor, Laboratorium Taksonomi Tumbuhan, Jurusan Biologi FMIPA UNPAD, dengan ini menerangkan bahwa:

Nama : Daula Zahra Zinan
 NIM/NIDN : 201FF03095
 Instansi : Universitas Bhakti Kencana.
 Lokasi : Bandung.

Telah melakukan identifikasi tumbuhan, dengan No. Koleksi: -
 Tanggal Koleksi : 25 Mei 2024.

Hasil Identifikasi

Nama Ilmiah : *Centella asiatica* (L.) Urb.
 Sinonim : *Centella boninensis* Nakai ex Tuyama
 Nama Lokal : Daun Pegagan
 Suku/Famili : Apiaceae

Klasifikasi (Hirarki Taksonomi)

Kingdom	Plantae
Divisi	Magnoliophyta
Class	Magnoliopsida
Ordo	Apiales
Famili	Apiaceae
Genus	<i>Centella</i>
Species	<i>Centella asiatica</i> (L.) Urb.

Referensi:

Backer, C. A. and Bakhuizen v/d Brink R. C Jr. 1963. Flora of Java. Wolter-Noordhoff NV. Groningen.
 Cronquist, Arthur. 1981. An Integrated System of Classification of Flowering Plants. Columbia University Press. New York
 The Plant List Website Dunia Tumbuhan. <http://www.theplantlist.org/tpl1.1/record/kew-158489>.

Jatinangor, 27 Mei 2024.

Identifikator,

LABORATORIUM TAKSONOMI TUMBUHAN
JURUSAN BIOLOGI FMIPA-UNPAD

Drs. Joko Kusumoro, M.P.
 NIP. 19600801 199101 1 001

Lampiran 4 Perhitungan Rendemen Ekstrak

Ekstrak Bunga Rosela	$\text{Rendemen} = \frac{\text{Bobot ekstrak}}{\text{Bobot simplisia}} \times 100\%$ $\text{Rendemen} = \frac{496,2}{1500} \times 100\%$ $\text{Rendemen} = 33,08 \%$
Ekstrak Daun Pegagan	$\text{Rendemen} = \frac{\text{Bobot ekstrak}}{\text{Bobot simplisia}} \times 100\%$ $\text{Rendemen} = \frac{307,1}{1500} \times 100\%$ $\text{Rendemen} = 20,47 \%$

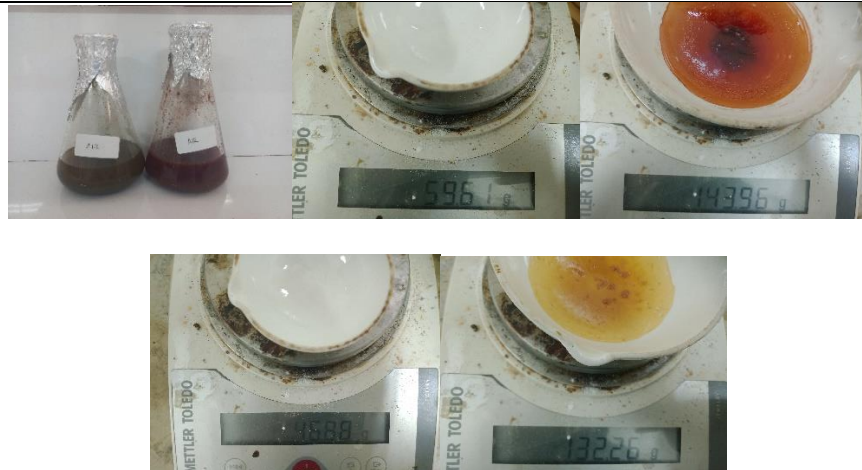
Lampiran 5 Karakterisasi Tanaman

Simplisia Bunga Rosela	1. Penetapan kadar abu $\% \text{ kadar abu} = \frac{(\text{Berat kurs + sampel}) - \text{berat kurs kosong}}{\text{Bobot simplisia}} \times 100\%$ $\% \text{ kadar abu} = \frac{39,48 - 33,47}{3} \times 100\%$ $\% \text{ kadar abu} = 2,0 \%$ 2. Penetapan kadar sari larut air $\% \text{ kadar sari larut air} = \frac{(\text{Berat cawan + sampel}) - \text{berat cawan kosong}}{\text{Bobot simplisia}} \times 100\%$ $\% \text{ kadar sari larut air} = \frac{143,96 - 59,61}{5} \times 100\%$ $\% \text{ kadar sari larut air} = 16,8 \%$ 3. Penetapan kadar sari larut etanol $\% \text{ kadar sari larut etanol} = \frac{(\text{Berat cawan + sampel}) - \text{berat cawan kosong}}{\text{Bobot simplisia}} \times 100\%$ $\% \text{ kadar sari larut etanol} = \frac{140,43 - 47,53}{5} \times 100\%$ $\% \text{ kadar sari larut etanol} = 18,58 \%$
Simplisia Daun Pegagan	1. Penetapan kadar abu $\% \text{ kadar abu} = \frac{(\text{Berat kurs + sampel}) - \text{berat kurs kosong}}{\text{Bobot simplisia}} \times 100\%$ $\% \text{ kadar abu} = \frac{43,46 - 34,24}{3} \times 100\%$ $\% \text{ kadar abu} = 3,07\%$ 2. Penetapan kadar sari larut air $\% \text{ kadar sari larut air} = \frac{(\text{Berat cawan + sampel}) - \text{berat cawan kosong}}{\text{Bobot simplisia}} \times 100\%$ $\% \text{ kadar sari larut air} = \frac{132,26 - 46,68}{5} \times 100\%$ $\% \text{ kadar sari larut etanol} = 17,07 \%$ 3. Penetapan kadar sari larut etanol $\% \text{ kadar sari larut etanol} = \frac{(\text{Berat cawan + sampel}) - \text{berat cawan kosong}}{\text{Bobot simplisia}} \times 100\%$ $\% \text{ kadar sari larut etanol} = \frac{95,92 - 73,70}{5} \times 100\%$ $\% \text{ kadar sari larut etanol} = 4,4 \%$

Lampiran 6 Perhitungan Larutan Uji

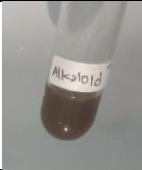
Orlistat 120 mg	$\text{Larutan stok} = \frac{120 \text{ mg}}{100 \text{ ml Na-CMC}}$ $\text{Konversi BB tikus} = 120 \text{ mg} \times 0.018 = 2.16 \text{ mg/ 200 g BB Tikus}$ $\text{Vol. Pemberian} = \frac{2.16 \text{ mg}}{120 \text{ mg}} \times 100 \text{ ml} = 1.8 \text{ ml/ 200 g BB Tikus}$
Curcumin 20 mg	$\text{Larutan stok} = \frac{20 \text{ mg}}{100 \text{ ml Na-CMC}}$ $\text{Konversi BB tikus} = 20 \text{ mg} \times 0.018 = 0.36 \text{ mg/ 200 g BB Tikus}$ $\text{Vol. Pemberian} = \frac{0.36 \text{ mg}}{20 \text{ mg}} \times 100 \text{ ml} = 1.8 \text{ ml/ 200 g BB Tikus}$
EDP 200 mg/kgBB	$= \frac{200 \text{ mg}}{1000} \times 200 \text{ g} = 40 \text{ mg/ 200 g BB Tikus/ 2 ml}$ $= 500 \text{ mg/ 25 ml}$ $\text{Larutan Stok Ekstrak Pekat} = 1.000 \text{ mg/ 25 ml}$ $\text{Vol. Pemberian} = \frac{40 \text{ mg}}{40 \text{ mg}} \times 1 \text{ ml} = 1 \text{ ml/ 200 g BB Tikus}$
EBR 250 mg/kgBB	$= \frac{250 \text{ mg}}{1000} \times 200 \text{ g} = 50 \text{ mg/ 200 g BB Tikus/ 2 ml}$ $= 625 \text{ mg/ 25 ml}$ $\text{Larutan Stok Ekstrak Pekat} = 1.250 \text{ mg/ 25 ml}$ $\text{Vol. Pemberian} = \frac{50 \text{ mg}}{50 \text{ mg}} \times 1 \text{ ml} = 1 \text{ ml/ 200 g BB Tikus}$
EBRDP 125 : 250 mg/kgBB	$\text{Vol. Pemberian Rosella } 125 \text{ mg/ kg BB} = 25 \text{ mg/ 25 mg} \times 1 \text{ ml} = 1 \text{ ml/ 200 g BB Tikus}$ $\text{Vol. Pemberian Pegagan } 200 \text{ mg/ kg BB} = 40 \text{ mg/ 40 mg} \times 1 \text{ ml} = 1 \text{ ml/ 200 g BB Tikus}$
EBRDP 250 : 100 mg/kgBB	$\text{Vol. Pemberian Rosella } 250 \text{ mg/ kg BB} = 50 \text{ mg/ 50 mg} \times 1 \text{ ml} = 1 \text{ ml/ 200 g BB Tikus}$ $\text{Vol. Pemberian Pegagan } 100 \text{ mg/ kg BB} = 20 \text{ mg/ 20 mg} \times 1 \text{ ml} = 1 \text{ ml/ 200 g BB Tikus}$

Lampiran 7 Karakterisasi Tanaman

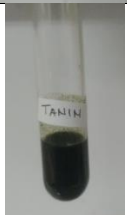
Kadar Abu Total**Kadar Sari Larut Air****Kadar Sari Larut Etanol**



Lampiran 8 Skrining Fitokimia Ekstrak Bunga Rosela

Pengujian	Pereaksi	Hasil	Gambar	
Alkaloid	Mayer	(-)		
	Dragendorf	(-)		
Flavonoid	Etanol 70% : HCL 2 N pekat : serbuk mg	(+)		
Saponin	HCL	(+)		
Tanin	Fec13 1%	(+)		

Lampiran 9 Skrining Fitokimia Ektrak Daun Pegagan

Pengujian	Pereaksi	Hasil	Gambar
Alkaloid	Mayer	(-)	
	Dragendorff	(-)	
Flavonoid	HCL : serbuk mg : amil alkohol	(+)	
Saponin	HCL	(+)	
Tanin	Fecl3 1%	(+)	
Steroid	Amil Alkohol	(+)	
Triterpenoid	Liebermann- Bouchard	(+)	

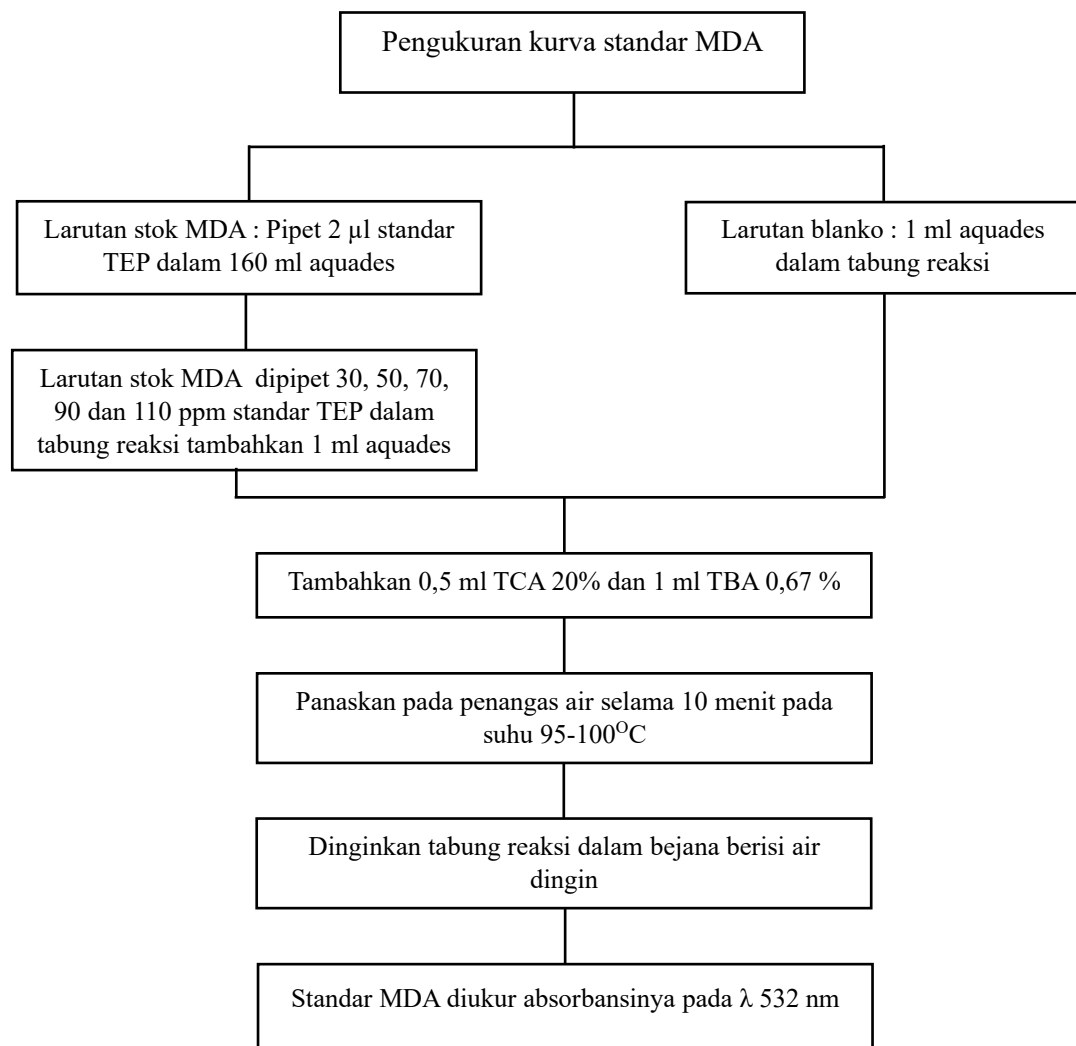
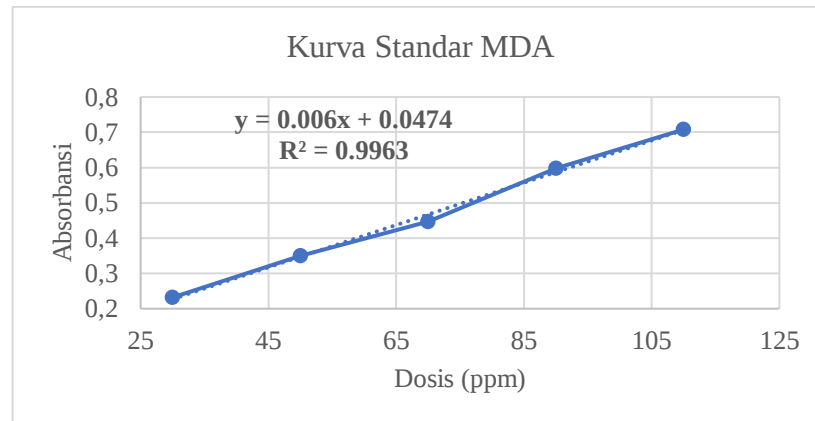
Lampiran 10 Pembuatan Pakan

Pembuatan Pakan Normal	
Pembuatan Pakan Induksi	

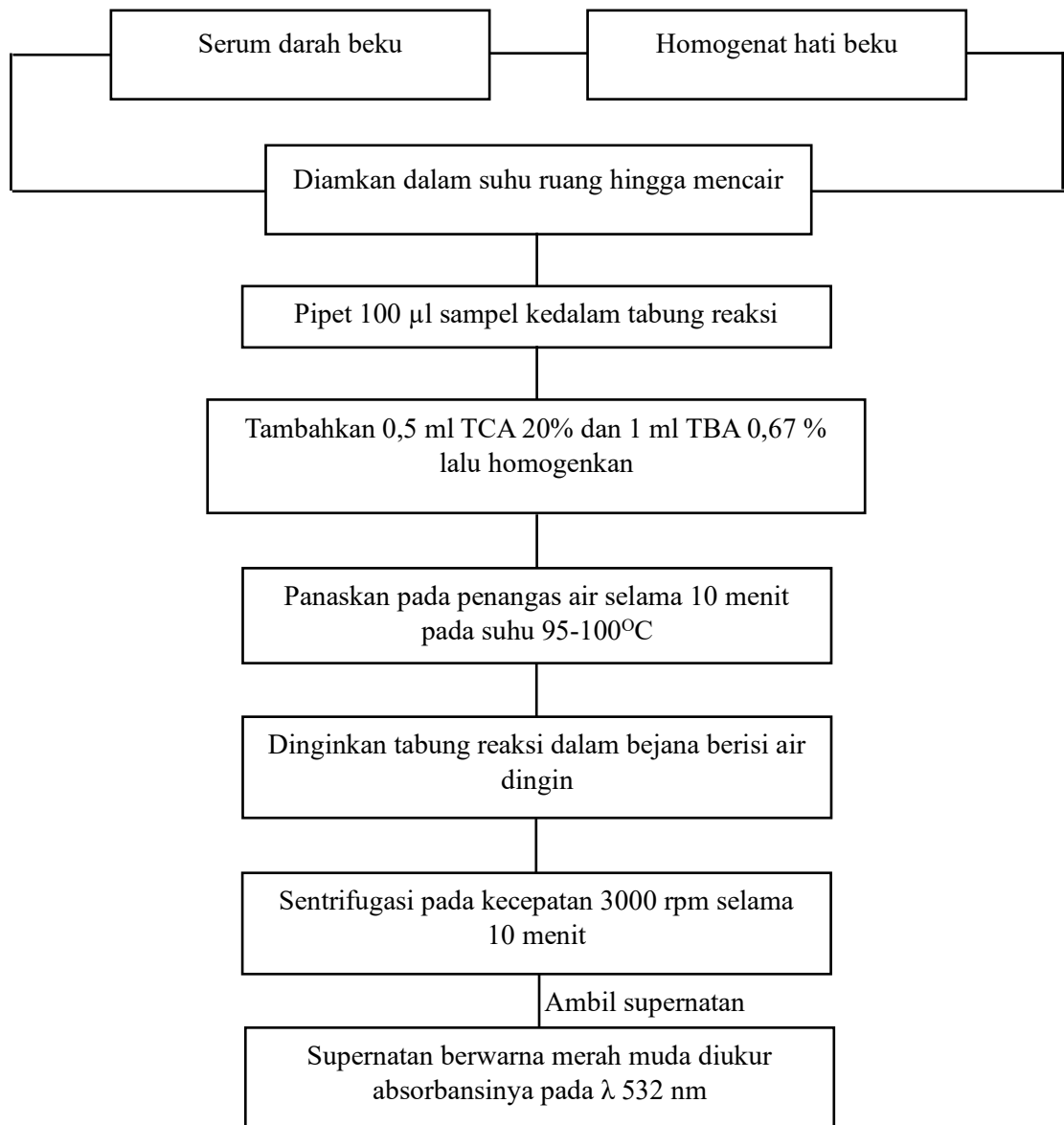
Lampiran 11 Dokumentasi Penelitian

Penimbangan Tikus	
Pemberian larutan uji secara oral	
Proses pembiusan tikus	
Pengambilan darah pada sinus orbitalis	
Larutan uji	
Pembedahan	

Lampiran 12 Kurva Standar MDA



Lampiran 13 Alur Pengukuran Kadar MDA



Lampiran 14 Perhitungan Kadar MDA

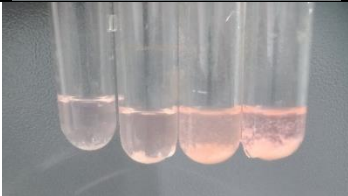
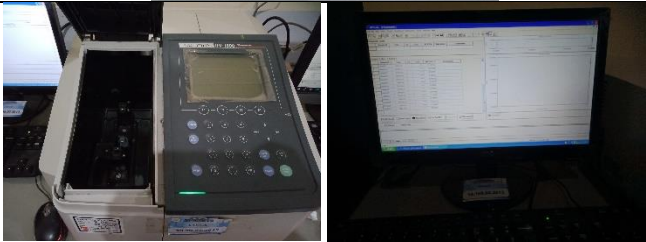
Persamaan Kurva Standar = $y = 0,006x + 0,0474$

Absorbansi sampel = 0,0896

$$\begin{aligned}
 y &= 0,006x + 0,0474 \\
 0,0896 &= 0,006x + 0,0474 \\
 0,0896 - 0,0474 &= 0,006x \\
 x &= \frac{0,0422}{0,006} \\
 &= 7,04 \text{ nmol/ml}
 \end{aligned}$$

Kelompok	No	Kadar MDA (nmol/ml)	
		Darah	Hati
Normal	1	7,04	17,04
	2	4,69	10,31
	3	14,04	7,58
	4	17,29	18,27
Induksi	1	34,82	43,06
	2	26,24	26,38
	3	15,65	18,04
	4	2,77	51,38
Orlistat	1	16,96	25,02
	2	-3,92	9,21
	3	1,08	3,56
	4	0,52	12,53
Kurkumin	1	16,86	32,58
	2	8,96	20,98
	3	7,23	22,87
	4	17,11	14,30
EDP 200 mg/kgBB	1	15,46	19,78
	2	6,94	10,27
	3	5,42	14,94
	4	6,90	5,88
EBR 250 mg/kgBB	1	25,42	27,70
	2	0,50	9,41
	3	10,43	16,00
	4	5,50	4,87
EBRDP 125 : 200 mg/kgBB	1	32,40	9,00
	2	8,97	10,60
	3	15,65	17,31
	4	25,74	35,65
EBRDP 250 : 100 mg/kgBB	1	15,55	10,10
	2	8,82	19,92
	3	3,93	11,50
	4	7,22	9,70

Lampiran 15 Dokumentasi Pengukuran MDA

Pembuatan homogenat hati	
Larutan standar MDA	
Sampel serum darah	
Sampel homogenat hati	
Pengujian MDA dengan spektrofotometri Uv-Vis pada panjang gelombang 532 nm	

Lampiran 16 Analisis Statistik Bobot Badan

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
H0	Based on Mean	2.675	7	24	.034
	Based on Median	.904	7	24	.520
	Based on Median and with adjusted df	.904	7	9.342	.542
	Based on trimmed mean	2.324	7	24	.058
H10	Based on Mean	2.442	7	24	.048
	Based on Median	1.413	7	24	.246
	Based on Median and with adjusted df	1.413	7	10.323	.297
	Based on trimmed mean	2.280	7	24	.063
H20	Based on Mean	1.249	7	24	.316
	Based on Median	.731	7	24	.648
	Based on Median and with adjusted df	.731	7	12.045	.651
	Based on trimmed mean	1.163	7	24	.359
H30	Based on Mean	1.041	7	24	.430
	Based on Median	.558	7	24	.782
	Based on Median and with adjusted df	.558	7	13.467	.777
	Based on trimmed mean	.911	7	24	.515
H40	Based on Mean	.957	7	24	.483
	Based on Median	.558	7	24	.782
	Based on Median and with adjusted df	.558	7	12.901	.777
	Based on trimmed mean	.855	7	24	.554
H50	Based on Mean	.438	7	24	.868
	Based on Median	.249	7	24	.967
	Based on Median and with adjusted df	.249	7	16.076	.965
	Based on trimmed mean	.404	7	24	.890
H60	Based on Mean	2.338	7	24	.057
	Based on Median	2.053	7	24	.089
	Based on Median and with adjusted df	2.053	7	10.587	.141

Based on trimmed mean	2.294	7	24	.061
-----------------------	-------	---	----	------

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
H0	Between Groups	4576.500	7	653.786	4.367	.003
	Within Groups	3593.000	24	149.708		
	Total	8169.500	31			
H10	Between Groups	4662.000	7	666.000	2.312	.059
	Within Groups	6914.000	24	288.083		
	Total	11576.000	31			
H20	Between Groups	8185.969	7	1169.424	4.470	.003
	Within Groups	6278.250	24	261.594		
	Total	14464.219	31			
H30	Between Groups	13983.875	7	1997.696	7.938	.000
	Within Groups	6040.000	24	251.667		
	Total	20023.875	31			
H40	Between Groups	19454.469	7	2779.210	9.898	.000
	Within Groups	6738.750	24	280.781		
	Total	26193.219	31			
H50	Between Groups	35076.500	7	5010.929	16.558	.000
	Within Groups	7263.000	24	302.625		
	Total	42339.500	31			
H60	Between Groups	48950.969	7	6992.996	18.913	.000
	Within Groups	8873.750	24	369.740		
	Total	57824.719	31			

Lampiran 17 Analisis Statistik Kadar MDA

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Kadar_MDA_Darah	Between Groups	1028.005	7	146.858	2.223	.068
	Within Groups	1585.256	24	66.052		
	Total	2613.261	31			
Kadar_MDA_Hati	Between Groups	1676.634	7	239.519	2.720	.032
	Within Groups	2113.529	24	88.064		
	Total	3790.163	31			

Lampiran 18 Lembar Bimbingan Dosen Pembimbing Utama



Fakultas Farmasi
Universitas
Bhakti Kencana

Dok. No. 02.64.00/FRM-03/AKD-SPMI

Jl. Soekarno Hatta No 754 Bandung
☎ 022 7830 760, 022 7830 768
✉ bku.ac.id contact@bku.ac.id

KARTU BIMBINGAN TUGAS AKHIR

Pembimbing	: Dr. apt. Marita Kaniawati, M.Si				
Nama Mahasiswa	: Cepy Ota Irfansyah				
NPM	: 201 FF03090				
Bidang Ilmu	: Farmasi dan Farmakologi dan Farmasi klinis				

1	Jumat, 29/1/2024	07.00	Kampus	Revisi sampel, membahas keangkas	-lin
2	Selasa/20-2-2024	13.30	Kampus	Diskusi keamatan tikus	-lin
3	Selasa/5-3-2024	12.00	Kampus	Membahas Platelam Ek6 dan MICRO Plate	-lin
4	Sabtu/16-3-2024	13.00	ZOOM	Diskusi keamatan tikus	-lin
5	Senin/18-3-2024	13.00	Kampus	Diskusi data BB tikus	-lin
6	Rabu/22-3-2024	11.00	Kampus	Diskusi data BB tikus	-lin
7	Senin/27-3-2024	19.30	ZOOM	Diskusi mengenai pembedahan	-lin
8	Selasa/30-4-2024	15.30	ZOOM	Kemajuan 1	-lin
9	Rabu/29-5-2024	15.30	ZOOM	Kemajuan 2	-lin
10	Kamis/30-5-2024	10.00	Kampus	Diskusi pengambilan sampel tikus	-lin
11	Senin/01-7-2024	08.00	Kampus	Diskusi data penelitian	-lin
12	Sabtu/06-7-2024	11.00	Kampus	Diskusi Pembahasan	-lin
13	Rabu/10-7-2024	08.00	Kampus	Diskusi Pembahasan	-lin

Catatan : Kartu ini harus dibawa setiap kali melakukan bimbingan dan harus diisi oleh dosen pembimbing.

Lampiran 19 Lembar Bimbingan Dosen Pembimbing Serta

[illegible]

Lampiran 20 *Curriculum Vitae* Peneliti

Cepy Okta Irfiansyah



Data Pribadi

Nama :

Cepy Okta Irfiansyah

Tempat, Tanggal Lahir :

Bandung, 30 Oktober 2001

Alamat :

Tanjungsari, Kab. Sumedang



Contact



085759914315



irfiansyahc@gmail.com



@cepyoi_



Pendidikan

- **(2020 - 2024)**
UNIVERSITAS BHAKTI KENCANA
S1 Farmasi

- **(2017-2020)**
SMK BHAKTI KENCANA CILEUNYI



Pengalaman Organisasi

- **(2019 -2020)**
KETUA OSIS
SMK Bhakti Kencana Cileunyi
- **(2018 - 2019)**
ANGGOTA OSIS
SMK Bhakti Kencana Cileunyi



Kemampuan

- Kepemimpinan
- Bekerja Tim
- Disiplin

Lampiran 21 Hasil Cek Plagiarisme

Cepy Okta Irfiansyah_201FF03090_Skripsi.pdf

ORIGINALITY REPORT

8%	7%	6%	5%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to IIT Delhi Student Paper	3%
2	123dok.com Internet Source	1%
3	ejurnal.poltekkestasikmalaya.ac.id Internet Source	1%
4	repository.bku.ac.id Internet Source	1%
5	repository.unair.ac.id Internet Source	1%
6	pdfcoffee.com Internet Source	1%
7	kimia.fmipa.unesa.ac.id Internet Source	1%
8	lontar.ui.ac.id Internet Source	1%