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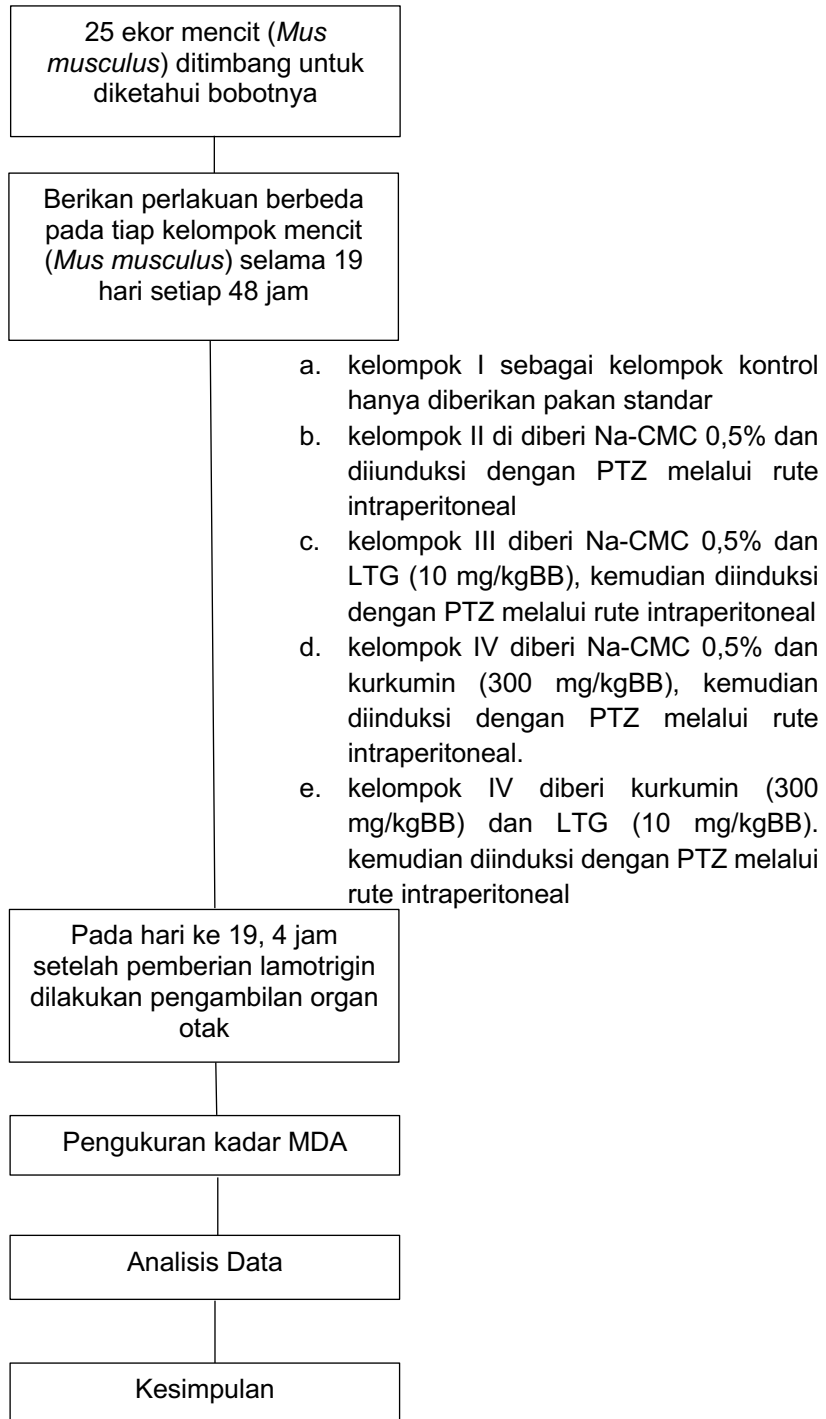
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LAMPIRAN

Lampiran 1. Skema Kerja Penelitian



Lampiran 2. Tabel Hasil Penelitian

Lampiran 2a. Hasil Pengukuran Kadar MDA

Tabel 2. Hasil Pengukuran Kadar MDA Otak Mencit

Kelompok Perlakuan	Kadar MDA ($\mu\text{g/ml}$)
KI (Pakan standar)	0,143 \pm 0,026
KII (Na CMC 0,5% + PTZ 35 mg/kgBB)	1,094 \pm 0,188
KIII (LTG 10 mg/KgBB + PTZ 35 mg/kgBB)	0,843 \pm 0,013
KIV (Kurkumin 300 mg/KgBB + PTZ 35 mg/kgBB)	0,557 \pm 0,106
KV (Kurkumin 300 mg/KgBB + LTG 10 mg/KgBB) + PTZ 35 mg/kgBB)	0,216 \pm 0,049

Tabel 3. Hasil Pengukuran Kadar MDA di Spektrofotometer UV-Vis

Sample ID	Type	Ex	Conc	WL532,0	Comments
1	Blank	Unknown	-0,107	0,000	
2	KI	Unknown	0,146	0,164	
3	KI	Unknown	0,165	0,176	
4	KI	Unknown	0,118	0,146	
5	KI	Unknown	0,116	0,144	
6	KI	Unknown	0,171	0,18	
7	KII	Unknown	0,997	0,714	
8	KII	Unknown	1,025	0,732	
9	KII	Unknown	1,003	0,718	
10	KII	Unknown	1,016	0,726	
11	KII	Unknown	1,430	0,994	
12	KIII	Unknown	0,852	0,62	
13	KIII	Unknown	0,853	0,621	
14	KIII	Unknown	0,825	0,603	
15	KIV	Unknown	0,379	0,314	
16	KIV	Unknown	0,640	0,483	
17	KIV	Unknown	0,636	0,48	
18	KIV	Unknown	0,574	0,441	
19	KV	Unknown	0,160	0,173	
20	KV	Unknown	0,261	0,238	
21	KV	Unknown	0,171	0,18	
22	KV	Unknown	0,223	0,213	
23	KV	Unknown	0,266	0,241	

Lampiran 2b. Data Statistik Pengukuran Kadar MDA

Tabel 4. Hasil One-Way ANOVA Pengukuran Kadar MDA

<i>ANOVA Summary</i>	
<i>F</i>	70.71
<i>P value</i>	<0.0001

<i>P value summary</i>	****
<i>Significant diff. among means (P<5.05)</i>	Yes
<i>R squared</i>	0.9433

Tabel 5. Hasil Tukey's Multiple Comparisons Test Pengukuran Kadar MDA

<i>Tukey's multiple comparisons test</i>	<i>Mean Diff</i>	<i>95,00% CI of diff,</i>	<i>Below threshold</i>	<i>Summary</i>	<i>Adjusted P Value</i>
KI vs. KII	-0,9510	-1,153 to -0,7488	Yes	****	<0,0001
KI vs. KIII	-0,7000	-0,9335 to -0,4665	Yes	****	<0,0001
KI vs. KIV	-0,4140	-0,6285 to -0,1995	Yes	***	0,0002
KI vs. KV	-0,07300	-0,2752 to 0,1292	No	ns	0,8050
KII vs. KIII	0,2510	0,01751 to 0,4845	Yes	*	0,0319
KII vs. KIV	0,5370	0,3225 to 0,7515	Yes	****	<0,0001
KII vs. KV	0,8780	0,6758 to 1,080	Yes	****	<0,0001
KIII vs. KIV	0,2860	0,04181 to 0,5302	Yes	*	0,0176
KIII vs. KV	0,6270	0,3935 to 0,8605	Yes	****	<0,0001

Lampiran 3. Perhitungan dosis**Lampiran 3a. Perhitungan dosis kurkumin 300 mg/kgBB (0,30 mg/gramBB)****Kurkumin 300 mg/kgBB** = 0,30 mg/gramBB

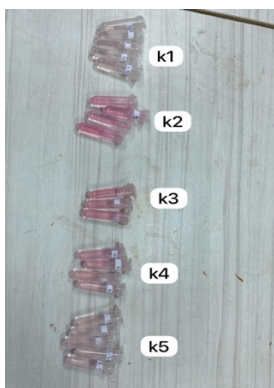
Berat rata-rata mencit = 35 gram
Dosis yang diberikan = $35 \times 0,90 \text{ mg} = 10,5 \text{ mg}$
Pemberian = 1% dari bobot mencit = 0,35 ml
Jumlah mencit = 10 ekor
Ekstrak Kunyit ditimbang = $(10,5 \text{ mg} \times 10 \text{ ekor})$ dalam $(0,35 \text{ ml} \times 10 \text{ ekor})$
= $(105 \text{ mg} \times 10 \text{ perlakuan})$ dalam $(3,5 \text{ ml Na-CMC}$
 $0,5 \% \times 10 \text{ perlakuan})$
= 1,050 g kurkumin dalam 35 mL Na-CMC

Lampiran 3b. Perhitungan Lamotrigin 10 mg/kgBB (0,010 mg/gramBB)



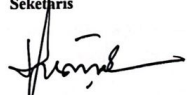
Berat rata-rata mencit = 35 gram
Dosis yang diberikan = $35 \times 0,010 \text{ mg} = 0,35 \text{ mg}$
Pemberian = 1% dari bobot mencit = 0,35 mL
Jumlah mencit = 10 ekor
Lamotrigin ditimbang = $(0,35 \text{ mg} \times 10)$ dalam $(0,35 \text{ mL} \times 10)$
= $(3,5 \text{ mg} \times 10 \text{ perlakuan})$ dalam $(3,5 \text{ mL Na-CMC}$
 $0,5\% \times 10 \text{ perlakuan})$
= 35 mg dalam 25 mL Na-CMC

Lampiran 3c. Perhitungan Pentylenetetrazole 35 mg/kgBB (0,035 mg/gramBB)

Berat rata-rata mencit = 35 gram
Dosis yang diberikan = $35 \times 0,035 \text{ mg} = 1,225 \text{ mg}$
Pemberian = 1% dari bobot mencit = 0,35 ml
Jumlah mencit = 20 ekor
Lamotrigin ditimbang = $(1,225 \text{ mg} \times 20)$ dalam $(0,35 \text{ ml} \times 20)$
= $24,5 \text{ mg} \times 10 \text{ perlakuan})$ dalam $(7 \text{ ml NaCl } 0,9\% \times 10$
perlakuan)
= 245 mg dalam 70 mL NaCl 0,9

Lampiran 4. Dokumentasi**Gambar 3. Aklimatisasi Hewan uji****Gambar 4. Pemberian sediaan Uji****Gambar 5. Pembedahan hewan uji****Gambar 6. Pembuatan campuran Kurva Standar MDA****Gambar 7. Gradasi warna pengukuran sampel MDA****Gambar 8. Pemanasan larutan standar MDA**

Lampiran 5. Rekomendasi persetujuan etik

 <p>KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI KOMITE ETIK PENELITIAN FARMASI DAN KESEHATAN FAKULTAS FARMASI UNIVERSITAS HASANUDDIN Sekretariat : Lantai 3 Fakultas Farmasi JL. PERINTIS KEMERDEKAAN KAMPUS UNILAS TAMALANREA KM.10 MAKASSAR 90245. CP: Nurhasni Hasan, Ph.D., Apt; No. Hp Sekretariat: 085179788835; email: kep.fakfarmas@unhas.ac.id</p>	
LEMBAR KEPUTUSAN ETIK	
Nomor	: 1582/UN4.17.8/KP.06.07/2023
Judul Penelitian	: Pengaruh Pemberian Kurkumin dan Lamotrigin terhadap Kadar MDA Otak Mencit yang Diinduksi dengan Pentilenetetrazole
Nama Peneliti	: Valent Grace Bittikaka
Nomor Registrasi	U H 0 1 2 3 1 1 0 1 1
A	Rangkuman penilaian oleh reviewers
B	Perlu full board: <input type="checkbox"/> Ya <input checked="" type="checkbox"/> Tidak a. Ya (terus ke C) b. Tidak (terus ke D)
C	Catatan Rapat Etik (Full Board) Tgl/bulan/tahun Tindak lanjut/catatan rapat etik Dikirimkan kembali ke yang bersangkutan dengan tembusan kepimpinan instansi
D	Hasil Penilaian <input type="checkbox"/> a. Disetujui <input checked="" type="checkbox"/> b. Disetujui dengan revisi minor (lihat lembaran pertimbangan/saran /petunjuk) <input type="checkbox"/> c. Disetujui dengan revisi mayor (lihat lembaran pertimbangan/saran/petunjuk) <input type="checkbox"/> d. Ditunda untuk beberapa alasan (lihat lembaran pertimbangan/saran/petunjuk) <input type="checkbox"/> e. Ditolak/tidak dapat disetujui (lihat lembaran pertimbangan/saran/petunjuk)
E	Penugasan pengawasan jalannya penelitian di lapangan untuk yang berisiko sedang – berat, mengobservasi apakah ada penyimpangan etik (tulis nama anggota komisi etik yang ditunjuk oleh rapat):
Makassar, 20 Desember 2023	
Ketua	Sekethris
 Prof. Dr. Elly Widyandini, D.F.A., Apt NIP. 1950051955012001	 Nurhasni Hasan M.Si., M.Pharm.Sc., Ph.D.Apt., NIP. 198601162010122009



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI
 KOMITE ETIK PENELITIAN FARMASI DAN KESEHATAN
 FAKULTAS FARMASI
 UNIVERSITAS HASANUDDIN
 Sekretariat : Lantai 3 Fakultas Farmasi
 JL. PERINTIS KEMERDEKAAN KAMPUS UNHAS TAMALANREA KM.10 MAKASSAR 90245.
 CP: Nurhasni Hasan, Ph.D., Apt. No. Hp Sekretariat: 085179788835; email: kep.fakfarmasi@unhas.ac.id

REKOMENDASI PERSETUJUAN ETIK

Nomor : 1582/UN4.17.8/KP.06.07/2023

Tanggal : 18 Desember 2023

Dengan ini menyatakan bahwa protokol dan dokumen yang berhubungan dengan protokol berikut ini telah mendapatkan persetujuan etik:

No Protokol	UH012311011	No Sponsor	-
Peneliti Utama	Valent Grace Bittikaka	Sponsor	-
Judul Peneliti	Pengaruh Pemberian Kurkumin dan Lamotrigin terhadap Kadar MDA Otak Mencit yang Diinduksi Pentylentetrazole		
No Versi Protokol	UH012311011	Tanggal Versi	-
No Versi PSP	-	Tanggal Versi	-
Tempat Penelitian	Laboratorium Biofarmasi Fakultas Farmasi Universitas Hasanuddin		
Jenis Review	<input type="checkbox"/> Exempted <input checked="" type="checkbox"/> Expedited <input type="checkbox"/> Full Board	Masa Berlaku Sampai	Frekuensi review lanjutan
Ketua Komisi Etik Penelitian	Nama Prof. Dr. Elly Wahyudin, DEA., Apt	Tanda tangan	Tanggal 22-12-2023
Sekretaris Komisi Etik Penelitian	Nama Nurhasni Hasan, M.Si., M.Pharm., Ph.D., Apt	Tanda tangan	Tanggal 22-12-2023

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 protokol yang disetujui (*protocol deviation/violation*)
- Mematuhi semua peraturan yang ditentukan.

Lampiran 6. Sertifikat analisis

Lampiran 6a. Lamotrigin



QualityAssurance@aladdinsci.com

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

Certificate of Analysis

Date of Testing: 2022-08-20 15:38:49

Date of Next Testing: 2024-08-19 15:38:49

Product Name: **Lamotrigine**

CAS Number: 84057-84-1

Specifications & Purity: $\geq 98\%$

Lot #: H2217428

SKU #: **L129555**

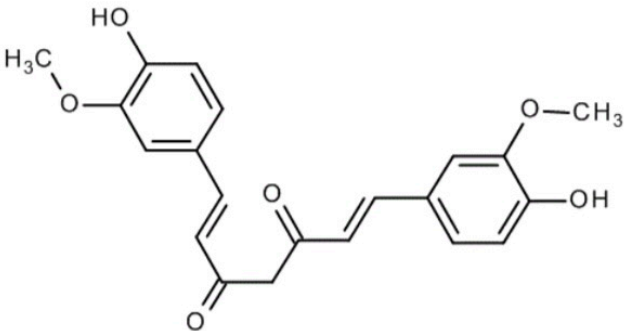
Analysis: **121813**

Storage Temperature: Store at 2-8°C, Argon charged

Parameter	Limit Values	Result
Purity(HPLC)	98-100 (%)	99.93800%
Carbon by Elemental Analysis	41-43.1 (%)	41.97%
Nitrogen by Elemental Analysis	26.7-27.9 (%)	27.53%
Melting point	216-220 (°C)	219.98000 °C
Appearance (L129555)	White powder	White powder
Solubility in DMSO , Colorless to Faint Yellow Clear(C=20mg/ml)	Conforms	Conforms

John Su
QA & QC Manager

Lampiran 7b. Kurkumin

Product Information	
CAS number	458-37-7
EC number	207-280-5
Hill Formula	$C_{21}H_{20}O_6$
Chemical formula	$[4-(OH)-3-(CH_3O)C_6H_3CH=CHCO]_2CH_2$
Molar Mass	368.39 g/mol
HS Code	3212.90.90
Structure formula image	 <p>The image shows the chemical structure of Curcumin. It consists of two 4-hydroxy-3-methoxyphenyl rings connected to a central hept-6-en-2-one chain. The chain is in its enone form, with a double bond between the two phenyl rings and a ketone group at the end of the chain.</p>
Quality Level	MQ200

Applications	
Application	Curcumin for synthesis. CAS 458-37-7, chemical formula $4-(OH)-3-(CH_3O)C_6H_3CH=CHCO_2CH_3$.

Physicochemical Information	
Melting Point	170 - 175 °C

Toxicological Information	
LD 50 oral	LD50 Tikus > 5000 mg/kg

Safety Information according to GHS	
RTECS	MI5230000
Storage class	10 - 13 Cairan dan padatan lain

WGK	WGK 3 sangat berbahaya untuk air
Disposal	3 Reagen organik yang relatif tidak aktif harus dikumpulkan dalam kategori A. Jika terhalogenasi, harus ditempatkan dalam Kategori B. Untuk residu padat gunakan Kategori C.

Storage and Shipping Information

Storage	Simpan dibawah +30°C.
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Specifications

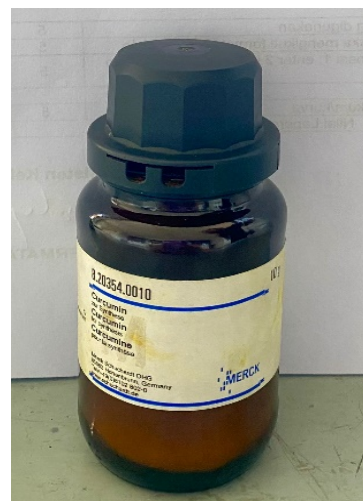
Assay (HPLC, area%)	≥ 75.0 % (a/a)
Bisdemethoxycurcumin (HPLC; Area%)	≤ 5.0 % (a/a)
Demethoxycurcumin (HPLC; Area%)	≤ 20.0 % (a/a)
Identity (IR)	passes test

Global Trade Item Number

Catalogue Number	GTIN
8203540002	04027269276966
8203540010	04022536457079
8203540050	04022536457086



Gambar 9. Bahan lamotrigin



Gambar 10. Bahan kurkumin