

LAMPIRAN

Lampiran 1 COA Kurkumin



Certificate of Analysis

8.20354.0000

Curcumin for synthesis

Batch

S8350354

Batch Values		
Assay (HPLC, area%)	77.1	% (a/a)
Bisdemethoxycurcumin (HPLC, Area%)	4.5	% (a/a)
Demethoxycurcumin (HPLC, Area%)	17.7	% (a/a)
Identity (IR)	passes test	

Date of examination (DD MM YYYY) 19 12 2022

Minimum shelf life (DD MM YYYY) 31 12 2027

Dr. Jorg Bauer

Responsible laboratory manager quality control

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Merck KGaA

Corporation with General Partners

Frankfurter Straße 250

64293 Darmstadt, Germany

The life science business of Merck KGaA, Darmstadt,

Germany operates as MilliporeSigma in the U.S. and

Canada

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SALSA Version 1260473/990000993739//

Date: 19.12.2022

Lampiran 2 COA dmSO



Certificate of Analysis

1.02952.1000 Dimethyl sulfoxide for analysis EMSURE® ACS
Batch K54861652

	Spec. Values		Batch Values	
Purity (GC)	≥ 99.9	%	99.9	%
Identity (IR)	conforms		conforms	
Appearance	clear		clear	
Color	≤ 10	Hazen	< 5	Hazen
Titration acid	≤ 0.0002	meq/g	0.0001	meq/g
Density (d 20 °C/20 °C)	1.101 - 1.103		1.102	
Refractive index (n 20/D)	1.478 - 1.481		1.479	
Melting point	≥ 18.0	°C	18.2	°C
Heavy metals (as Pb)	≤ 0.0001	%	≤ 0.0001	%
Fe (Iron)	≤ 0.0001	%	≤ 0.0001	%
Related substances (GC)	conforms		conforms	
Readily carbonizable substances	conforms		conforms	
Evaporation residue	≤ 0.001	%	< 0.001	%
Water	≤ 0.1	%	< 0.1	%

Date of release (DD.MM.YYYY) 22.12.2022
Minimum shelf life (DD.MM.YYYY) 31.12.2025

Jeannette David
Responsible laboratory manager quality control

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Lampiran 3 Perhitungan dan Pembuatan Kurva baku Kurkumin

Larutan Induk

$$\text{Konsentrasi Larutan} = \frac{\text{Bobot Kurkumin}}{\text{Volume}}$$

$$50 \text{ ppm} = \frac{50 \text{ mg}}{1000 \text{ ml}}$$

$$\begin{aligned}
 &= \frac{50 \text{ mg}}{100 \text{ ml}} \\
 \text{Bobot Kurkumin} &= \frac{25 \text{ mg}}{50 \text{ ml}} = 0,5 \text{ mg/ml}
 \end{aligned}$$

Pengenceran Larutan

- a. Konsentrasi 2 ppm

$$V1 \times C1 = V2 \times C2$$

$$V1 \times 50 \text{ ppm} = 5 \text{ ml} \times 2 \text{ ppm}$$

$$V1 = \frac{10 \text{ ml}}{50 \text{ ppm}}$$

$$V1 = 0,2 \text{ ml} = 200 \mu\text{l}$$

- b. Konsentrasi 2,5 ppm

$$V1 \times C1 = V2 \times C2$$

$$V1 \times 50 \text{ ppm} = 5 \text{ ml} \times 2,5 \text{ ppm}$$

$$V1 = \frac{12,5 \text{ ml}}{50 \text{ ppm}}$$

$$V1 = 0,25 \text{ ml} = 250 \mu\text{l}$$

- c. Konsentrasi 3 ppm

$$V1 \times C1 = V2 \times C2$$

$$V1 \times 50 \text{ ppm} = 5 \text{ ml} \times 3 \text{ ppm}$$

$$V1 = \frac{15 \text{ ml}}{50 \text{ ppm}}$$

$$V1 = 0,3 \text{ ml} = 300 \mu\text{l}$$

- d. Konsentrasi 3,5 ppm

$$V1 \times C1 = V2 \times C2$$

$$V1 \times 50 \text{ ppm} = 5 \text{ ml} \times 3,5 \text{ ppm}$$

$$V1 = \frac{17,5 \text{ ml}}{50 \text{ ppm}}$$

$$V1 = 0,35 \text{ ml} = 350 \mu\text{l}$$

- e. Konsentrasi 4 ppm

$$V1 \times C1 = V2 \times C2$$

$$V1 \times 50 \text{ ppm} = 5 \text{ ml} \times 4 \text{ ppm}$$

$$V1 = \frac{20 \text{ ml}}{50 \text{ ppm}}$$

$$V1 = 0,4 \text{ ml} = 400 \mu\text{l}$$

f. Konsentrasi 5 ppm

$$V1 \times C1 = V2 \times C2$$

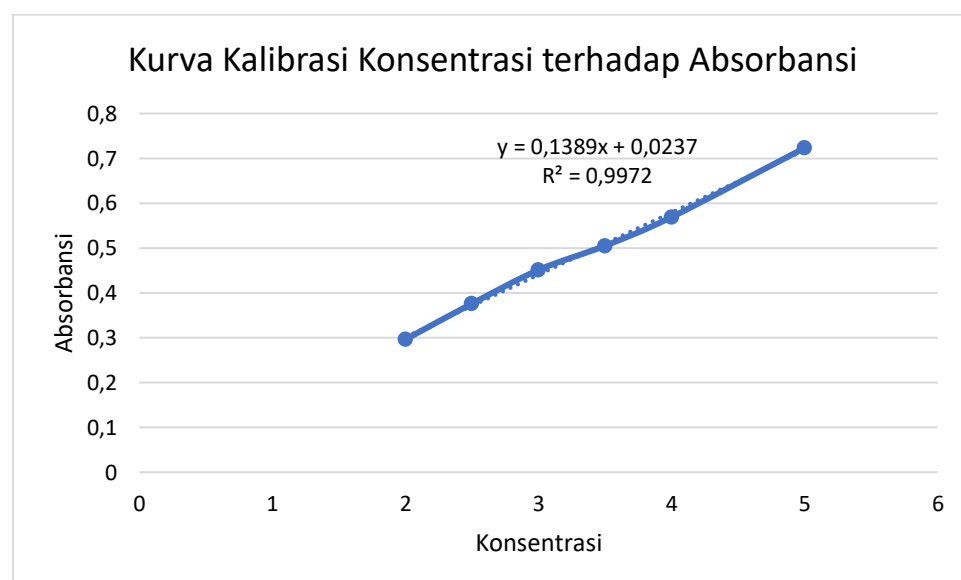
$$V1 \times 50 \text{ ppm} = 5 \text{ ml} \times 5 \text{ ppm}$$

$$V1 = \frac{25 \text{ ml}}{50 \text{ ppm}}$$

$$V1 = 0,5 \text{ ml} = 500 \mu\text{l}$$

Kurva Kalibrasi Kurkumin

No	kons (bpj)	Absorban
1	2 ppm	0,296
2	2,5 ppm	0,376
3	3 ppm	0,451
4	3,5 ppm	0,505
5	4 ppm	0,569
6	5 ppm	0,723
rata rata	3,33333333	



Lampiran 4 Hasil perhitungan %EE

a. Konsentrasi Larutan

$$\text{Konsentrasi} = \frac{y-a}{b}$$

b. Bobot Zat Aktif bebas

Bobot Zat aktif bebas = Konsentrasi x Volume x Faktor Pengenceran

c. Rumus %EE

$$\%EE = \frac{\text{Total Zat Aktif} - \text{Zat Aktif bebas}}{\text{total zat aktif}} \times 100\%$$

PENGUJIAN NLC KURKUMIN H31								
Formula	Abs	C (ppm)	Fp	C' (ppm)	Vol (mL)	mcg	mg	%EE
AMC 1	0,052	0,204	5	1,02	5	5,093592513	0,005	99,96604272
AMC 2	0,048	0,175	5	0,87	5	4,373650108	0,004	99,97084233
AMC 3	0,051	0,197	5	0,98	5	4,913606911	0,005	99,96724262
AMC 4	0,002	-0,156	5	-0,78	5	-3,905687545	-0,004	100,0260379
AMC 5	0,015	-0,063	5	-0,31	5	-1,56587473	-0,002	100,0104392
PENGUJIAN NLC KURKUMIN H30								
Formula	Abs	C (ppm)	Fp	C' (ppm)	Vol (mL)	mcg	mg	%EE
AMC 1	0,048	0,175	5	0,87	5	4,373650108	0,004	99,97084233
AMC 2	0,054	0,218	5	1,09	5	5,453563715	0,005	99,96364291
AMC 3	0,057	0,240	5	1,20	5	5,993520518	0,006	99,9600432
AMC 4	0,055	0,225	5	1,13	5	5,633549316	0,006	99,962443
AMC 5	0,052	0,204	5	1,02	5	5,093592513	0,005	99,96604272

Lampiran 5 Hasil Spss

Paired Samples Test				
	Paired Differences	t	df	

Pair 14	H1_ZETA_F4								
	-								
Pair 15	H30_ZETA_F4								
	-								
Pair 14	H1_ZETA_F5								
	-								
Pair 15	H30_ZETA_F5								
	-								

Lampiran 6 Dokumentasi penelitian



Alat Sonikator probe



Alat magnetic stirrer



Hasil uji kelarutan



Alat vortex



Timbangan



Tabung filter vivaspin



Alat sentrifugasi



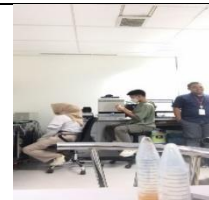
Hasil uji
solidifikasi



Alat Hot plate



Pengujian
morfologi di
UGM



Pengujian
karakterisasi
di PT. DKSH
Jakarta

Lampiran 7 cek plagiarisme

PENGEMBANGAN-FORMULASI-DAN-KARAKTERISASI-NANOSTRUCTURED-LIPID-CARRIERS--NLC--KURKUMIN-MENGGUNAKAN-PEG-8-BEESWAX--CAPRIC-TRIGLYCERIDE--DAN-PEG-40-HYDROGENATED-CASTOR-OIL.docx			
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CURRICULUM VITAE

DATA PRIBADI

Nama : Rendhi Nugraha

Tempat, tanggal lahir : Sumedang, 21 Juni 2002

Agama : Islam

Tinggi badan : 172 cm

Alamat : Dsn. Cibiru RW.10 RT.11 Ds. Cipacing Kec. Jatinagor
Kab. Sumedang Jawa Barat

No. HP : 085798042028

Email : rendinugraha02@gmail.com



DATA PENDIDIKAN

SD : SDN Bojongloa 3

SMP : SMPN 1 Rancaekek

SMA : SMAN 1 Rancaekek

PENGALAMAN

Komisi 3 DPM KEMA FF UBK	2022 – 2023
Wakil ketua umum DPM KEMA FF UBK	2023-2024
MBKM RSUD Bandung Kiwari	Oktoner 2023 – Januari 2024

KARTU BIMBINGAN TUGAS AKHIR II

Pembimbing Utama	: Dr. Alf. Garnadi Jafar, M.Si
Nama Mahasiswa	: Renghi Nugraha
NPM	: 201803192
Bidang Ilmu	: Farmasetika Teknologi Farmasi

[illegible]

022 1830 160 022 1830 168

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

KARTU BIMBINGAN TUGAS AKHIR II

Pembimbing Serta	: Dr. apt. Dadih Supriadi, M. Si
Nama Mahasiswa	: Rendhi Nugraha
NPM	: 201FF03142
Bidang Ilmu	: Farmasetika dan Teknologi Farmasi

N o	Hari/Tanggal	Waktu	Tempat	Materi	Paraf Dosen
1.	Rabu, 21 februari 2024	09.30	GMEET	Diskusi awal penelitian	
2.	selasa, 30 April 2024	10.00	chat WA	laporan kemajuan 1	
3.	kamis, 23 mei 2024	15.30	ZOOM	seminar KK	
4.	Kamis, 30 Mei 2024	15.30	gmeet	laporan kemajuan 2	
5.	Rabu, 12 juni 2024	13.00	kampus UBK	diskusi hasil penelitian	
6	rabu, 10 juli 2024	13.30	kampus UBK	diskusi hasil penelitian	
7	kamis, 11 juli 2024	18.30	G Drive	revisi draft skripsi	
8	jumat, 12 juli 2024	14.00	Gdrive	revisi draft skripsi	
 Jl. Soekarno Hatta No 754 Bandung  022 7830 760, 022 7830 768					

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