

LAMPIRAN

Lampiran 1. COA Asam tartat

CERTIFICATE OF ANALYSIS

MARKS & NOS.	INVOICE NO.:2024NCRH3066
N/M	DATE:JUN 13, 2024
DL-TARTARIC ACID	
BATCH NUMBER	AB2406050
DESCRIPTION	WHITE CRYSTALLINE POWDER
CONTENT	99.87%
SULPHATE	PASSED
HEAVY METALS	< 0.001 %
ARSENIC	< 0.0003%
LOSS ON DRYING	0.33%
RESIDUE ON IGNITION	0.036%
QUANTITY	21000KGS
CONCLUSION	ACCORDING TO FOOD GRADE(ANHYDROUS) STANDARD
PRODUCTION DATE	JUN 10, 2024
EXPIRY DATE	JUN 09, 2026

Lampiran 2. COA Laktosa halaman 1



DFE Pharma GmbH & Co. KG / PO Box 20 21 20 / D-47568 Goch

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0811342880-900001-20221010-133649-2006-3420_FONT_01-000001

Certificate of Analysis

Customer number	: 160560	Lot/ Batchnumber	: 23174701
Delivery number	: 811342880	Date of production	: 03.06.2022
Delivery Date	: 24.10.2022	Expiry date	: 01.06.2025
Material number	: 0743826	Order number	: 15452851
Material description	: HMS Impalpable (NZ)	Your order number	: PH220517
	Milled lactose monohydrate		
	USP-NF, Ph.Eur., JP		
	Bag, PE liner, 25 kg net		

Analysis**Chemical & Physical**

Characteristic	Method of analysis	Unit	Specification	Results
Infrared absorption spectrum / Id A	USP-NF; Ph.Eur.; JP		Conforms to reference	Pass
Water / Id D Ph.Eur.	USP-NF; Ph.Eur.; JP	% (m)	4.5-5.5	5.1
Appearance of solution	Ph.Eur.		Not more intensely coloured than ref BY7	Pass
Lactose colour of sol.	USP-NF; JP		Nearly colourless	Pass
Lactose clarity of sol.	USP-NF; Ph.Eur.; JP		Clear	Pass
UV-Abs. 1% sol. 210-220 nm	USP-NF; Ph.Eur.; JP		0.00-0.25	0.02
UV-Abs. 1% sol. 270-300 nm	USP-NF; Ph.Eur.; JP		0.00-0.07	0.00
UV-Abs. 10% sol. 400 nm	USP-NF; Ph.Eur.; JP		0.00-0.04	0.00
Acidity (0.1N NaOH/6g)	USP-NF; Ph.Eur.; JP	ml	0.0-0.4	0.2
Specific optical rotation (anhydrous bas	USP-NF; Ph.Eur.; JP	Degree	54.4-55.9	55.1
Heavy Metals	USP-NF; Ph.Eur.; JP		max 5 ppm	Pass
Loss on Drying (2 hrs, 80°C)	USP-NF; JP	% (m)	0.0-0.5	0.1
Residue on Ignition / Sulfated ash	USP-NF; Ph.Eur.; JP	% (m)	0.0-0.1	<0.1

Microbiological

Characteristic	Method of analysis	Unit	Specification	Results
Total Aerobic Micro Count	Pharmacopela Harmonized Methods	cfu/g	0-100	<100
Total Yeast & Mould Count	Pharmacopela Harmonized Methods	cfu/g	0-10	<10
Escherichia coli (10 g)	Pharmacopela Harmonized Methods		Negative	Negative
Salmonella (750g)	equal to ISO 6579		Negative	Negative

OTHERS

Characteristic	Method of analysis	Unit	Specification	Results
Particle size <75 µm	Internal, ATM sonic sifter	% (m)	78-86	81
Particle size <180 µm	Internal, ATM sonic sifter	% (m)	>=98	99

Manufacturer: DFE Pharma GmbH & Co. KG, Goch, Germany (formerly named "DMV-Fonterra Excipients GmbH & Co. KG")

Lampiran 3. COA Laktosa halaman 2

**DFE**
pharma

DFE Pharma GmbH & Co. KG / PO Box 20 21 20 / D-47568 Goch

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0811342880-900001-20221010-133649-2006-3420_FONT_01-000001

Remarks

Product Description: alpha-lactose monohydrate pharmaceutical grade

Identification: conforms USP-NF, Ph.Eur, JP current at time of manufacture.

Characteristics: A white or almost white, odourless, crystalline powder freely soluble in water, practically insoluble in ethanol.

Residual solvents: CPMP/ICH/283/95 and USP-NF Chapter 467
No class 1, 2, 3 solvents are used during production.Production Site:
Fonterra Limited, Kaponga, New Zealand**Released by:** Adora Joy Torres
Released on: Aug 5, 2022**DFE Pharma GmbH & Co. KG**
Klever Straße 187, 47574 Goch / Germany
P.O. Box 20 21 20, 47568 Goch / Germany
Tel.: +49 (0) 2823 / 92 88 77 - 0
Fax: +49 (0) 2823 / 92 88 77 - 99

This document has been produced electronically and is valid without signature.

Manufacturer: DFE Pharma GmbH & Co. KG, Goch, Germany (formerly named "DMV-Fonterra Excipients GmbH & Co. KG")

Lampiran 4. COA HPMC

 Manufacturing Substance Pharmaceutical Based Taiwan Guang daos 23 street block G-1 012776378920	
CERTIFICATE OF ANALYSIS	
HPMC	
Analytical	
Gum content	82% min.
Moisture	11% max
Ash	1% max
Acid insoluble residue	3% max.
Protein	5% max.
Heavy metals	Less than 10 PPM
pH	5 to 6.5
Cold viscosity	
1% solution, temp 25°C, Brookfield viscometer at 20 RPM	
After 2 hrs.	5000 CPS min.
After 24 hrs.	5200 - 5500 CPS
Granulation	
Retained on 100 mesh	Traces
Passed through 200 mesh	95% min.
Microbiological	
Standard plate count	2000/gm max.
Yeast & Moulds	100/gm max.
Coliforms	Absent
E.Coli	Absent
Salmonella	Absent
Self life & storage	
Minimum one year in normal warehouse conditions.	
Packing	
25 Kgs net in multi wall paper bags with polyliners inside.	

Lampiran 5. COA PVP

COA Code: JHNHPK30PG(USP41)0002

 **JH Nanhang Life Sciences Co., Ltd.**
Certificate of Analysis

Product Name	Povidone K30	Batch No.	PK30-220428F22	Date of Mfg	20220428
Quantity	4900KG	Packaging	25KG/ Fibre Drum	Expiry Date	20260427
Source	PVP Workshop	Reference	USP41		
No.	Items	Specification			Test Results
1.	Appearance	White or yellowish-white, hygroscopic powder			Complies
2.	Solubility	Freely soluble in water, ethanol 96%, methanol, very slightly soluble in acetone			Complies
3.	Identifications A, B, C, D, E	Positive			Complies
4.	Appearance of solution	Clear and NMT B _s , BY _s , or R _s			Complies
5.	pH	3.0-5.0			3.5
6.	K-value	27.0-32.4			29.7
7.	Aldehydes, ppm	≤ 500			21.6
8.	Peroxides, ppm	≤ 400			207
9.	Formic acid, %	≤ 0.5			0.3
10.	Hydrazine, ppm	≤ 1			<1
11.	Impurity A(1-vinylpyrrolidin-2-one), ppm	≤ 10			0.090
12.	Impurity B (2-pyrrolidone), %	≤ 3.0			1.1
13.	Heavy metals, ppm	≤ 10			<10
14.	Lead, ppm	≤ 10			<10
15.	Water, %	≤ 5.0			2.5
16.	Sulphated ash, %	≤ 0.1			0.08
17.	Nitrogen content, %	11.5 - 12.8			11.9
18.	* Total Aerobic Plate count, CFU/g	≤100			<10
19.	* Total Mold/Yeast count, CFU/g	≤100			<10
20.	* E.coli, CFU/g	Not detected			Complies
21.	* Staphylococcus Aureus, CFU /g	Not detected			Complies
22.	* Pseudomonas Aeruginosa, CFU /g	Not detected			Complies
23.	* Salmonella, CFU /g	Not detected			Complies

Note: The above tests with * are performed randomly.

Conclusion: Material meets the requirement for Povidone in USP41.

Completed by: Yang zhimin	Signature: 	Date: 19/5/2022
QC Manager: Tong Mengxin	Signature: 	Date: 19/5/2022
Released by QA Manager: Zhang Ming	Signature: 	Date: 19/5/2022

Factory address: No.16 Luyin Road, Hi-Tech Industrial Zone, Quzhou, Zhejiang, 324004 P. R. China

Website: www.jh-nh.com E-mail: info@jh-nh.com Contact person: Zhang Ming Tel: + 86-0570-3883574

Lampiran 6. COA Sodium bikarbonat

CERTIFICATE OF ANALYSIS

ORIGINAL

DATE: OCT 19, 2023

CONSIGNEE: TO WHOM IT MAY CONCERN

BENEFICIARY: INNER MONGOLIA IHJUCHEM INDUSTRIAL CO., LTD.
3RD FLOOR NO.20 BUILDING YITAI PRINCE MANTION, WANTONG ROAD, RUYI DIST, HOHHOT CHINA
COMMODITY: SODIUM BICARBONATE MALAN BRAND 99% MIN.

MARKS & NUMBERS: N/M

MANUFACTURING DATE: 20230910
EXP. DATE: 20250909
LOT NO. 20230910

THIS IS TO CERTIFY THAT WE, THE BENEFICIARY, HAVE INSPECTED THE QUALITY OF THE ABOVE MENTIONED GOODS UNDER THE CHINESE STANDARD GB1887-2007 AND FOUND THE RESULT OF INSPECTION AS FOLLOWS:

ITEM	SPECIFICATION	RESULT
Total Alkalinity (As NAHCO3)	99% MIN.	99.99%
Chloride (Cl)	0.4% MAX.	0.01%
ARSENIC (AS)	0.0001% MAX.	0.000095%
HEAVY METALS (PB)	0.0005% MAX.	0.00046%
LOSS ON DRYING	0.20% MAX.	0.08%
PH VALUE	8.5 MAX.	8.1
NH4	0	0

内蒙古博源国际贸易有限公司
INNER MONGOLIA IHJUCHEM
INDUSTRIAL CO., LTD

刘宝书

Lampiran 7. Determinasi

HERBARIUM JATINANGORIENSE
LABORATORIUM BIOSISTEMATIKA DAN MOLEKULER
DEPARTEMEN BIOLOGI, FMIPA UNPAD
 Gedung D2-212, Jl. Raya Bandung Sumedang Km 21 Jatinangor
 Telp. 022-7796412

LEMBAR IDENTIFIKASI TUMBUHAN
 No.477/LBM/IT/XII/2024

Herbarium Jatinangor, Laboratorium Biosistematika dan Molekuler, Departemen Biologi FMIPA UNPAD, dengan ini menerangkan bahwa:

Nama : Ichsan Maulana
 NPM : 211FF03024
 Instansi : Universitas Bhakti Kencana
 Telah melakukan identifikasi tumbuhan, dengan No. Koleksi: 596
 Tanggal Koleksi : 2 Desember 2024
 Lokasi : Sumedang, Jawa Barat.

Hasil Identifikasi,

Nama Ilmiah : *Piper betle* L.
 Sinonim : *Piper betum* (L.) Miq.
 Nama Lokal : Sirih hijau
 Suku/Famili : *Piperaceae*

Referensi:

Cronquist, Arthur. 1981. *An Integrated System of Classification of Flowering Plants*.
 Columbia University Press. New York
 World Flora Online(2021): <https://powo.science.kew.org/>.

Jatinangor, 20 Desember 2024

Mengetahui,
Kepala Laboratorium



Annisa, M.Si., Ph.D.
NIP. 197802042006042001

Identifikator,



Drs. Joko Kusmoro, M.P
NIP. 196008011991011001

Lampiran 8. Hasil skrining fitokimia ekstrak

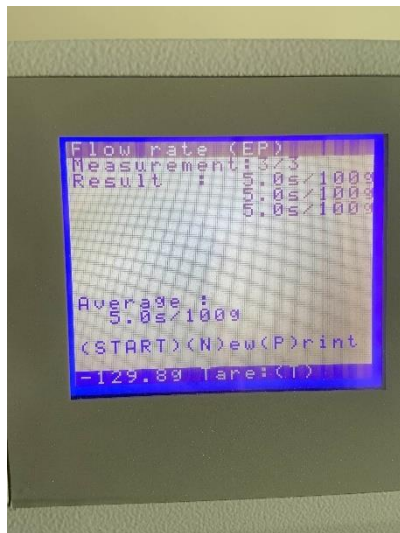
				
Saponin	Tanin	Flavonoid	Alkaloid	Steroid

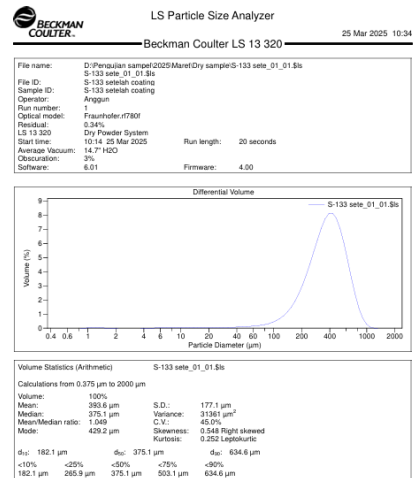
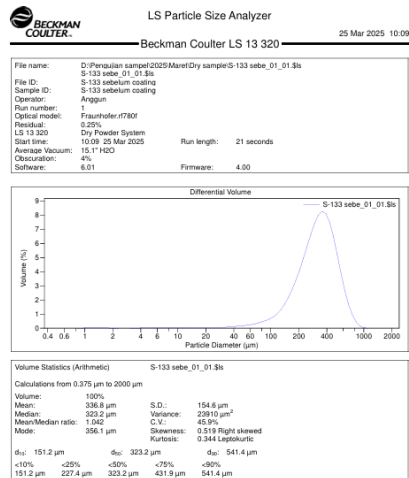
Lampiran 9. Mikrokapsul



Lampiran 10. Evaluasi mikrokapsul







Beckman Coulter LS 13 320 25 Mar 2025 10:09

S-133 seke_01_01.xls

Channel	DIFF. Cumulative Volume (%)	Channel	DIFF. Cumulative Volume (%)
0.375	0	302.5	8.01
0.452	0	319.5	8.39
0.452	0	373.1	9.12
0.452	0	403.5	9.31
0.545	0	443.7	9.59
0.599	0	493.5	9.89
0.677	0	541.3	10.00
0.721	0.00015	594.9	2.49
0.761	0.00015	652.5	1.71
0.869	0.00049	714.9	0.97
0.964	0.0014	781.9	0.45
1.079	0.0037	844.3	0.17
1.149	0.0119	944.3	0.037
1.261	0.0138	1040	0.0031
1.385	0.016	1143	0
1.522	0.0213	1255	0
1.672	0.0210	1377	0
1.832	0.0010	1502	0
2.004	0.0024	1622	0
2.423	0.0014	2000	0
2.640	0.0013		
2.909	0.0001		
3.208	0.0004		
3.539	0.0009		
3.903	0.0016		
4.241	0.013		
4.556	0.0236		
5.111	0.0329		
5.611	0.024		
6.159	0.0017		
6.761	0.001		
7.422	0.0014		
8.148	0.010		
8.948	0.0062		
9.819	0.004		
10.78	0.000		
11.83	0.000		
12.99	0.000		
14.28	0.000		
15.78	0.000		
17.48	0.000		
19.46	0.000		
21.71	0.000		
24.28	0.000		
27.09	0.000		
30.27	0.000		
33.81	0.000		
37.64	0.10		
41.78	0.13		
46.27	0.10		
51.14	0.10		
56.43	0.21		
62.17	0.20		
68.42	0.30		
75.18	0.27		
82.43	0.41		
90.10	0.54		
98.30	0.64		
107.1	0.76		
116.5	0.89		
126.8	1.00		
137.9	1.00		
149.8	1.00		
162.6	2.11		
176.9	0.30		
192.7	4.50		
210.2	4.71		
229.1	5.76		
249.9	6.44		
282.1	7.42		

Beckman Coulter LS 13 320 25 Mar 2025 10:34

S-133 seke_01_01.xls

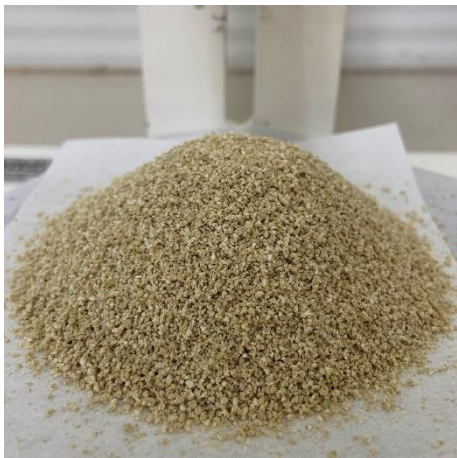
Channel	DIFF. Cumulative Volume (%)	Channel	DIFF. Cumulative Volume (%)
0.375	0	302.5	7.08
0.452	0	319.5	7.75
0.452	0	373.1	8.11
0.452	0	403.5	8.15
0.545	0	443.7	7.79
0.599	0	493.5	7.05
0.677	0	541.3	6.32
0.721	0.00015	594.9	4.82
0.761	0.00015	652.5	3.71
0.869	0.00049	714.9	2.39
0.964	0.0014	781.9	1.42
1.079	0.0037	844.3	0.70
1.149	0.0119	944.3	0.30
1.261	0.0138	1040	0.075
1.385	0.016	1143	0.0049
1.522	0.0213	1255	0
1.672	0.0210	1377	0
1.832	0.0010	1502	0
2.004	0.0024	1622	0
2.423	0.0014	2000	0
2.640	0.0013		
2.909	0.0001		
3.208	0.0004		
3.539	0.0009		
3.903	0.0016		
4.241	0.0009		
4.556	0.0019		
5.111	0.0094		
5.611	0.0112		
6.159	0.0112		
6.761	0.0114		
7.422	0.0115		
8.148	0.016		
8.948	0.017		
9.819	0.019		
10.78	0.021		
11.83	0.023		
12.99	0.026		
14.28	0.030		
15.78	0.033		
17.48	0.037		
19.46	0.039		
21.71	0.039		
24.28	0.037		
27.09	0.034		
30.27	0.029		
33.81	0.024		
37.64	0.019		
41.78	0.014		
46.27	0.010		
51.14	0.007		
56.43	0.005		
62.17	0.004		
68.42	0.003		
75.18	0.002		
82.43	0.002		
90.10	0.001		
98.30	0.001		
107.1	0.001		
116.5	0.000		
126.8	0.000		
137.9	0.000		
149.8	0.000		
162.6	0.000		
176.9	0.000		
192.7	0.000		
210.2	0.000		
229.1	0.000		
249.9	0.000		
282.1	0.000		

Lampiran 11. Evaluasi sediaan *effervescent*

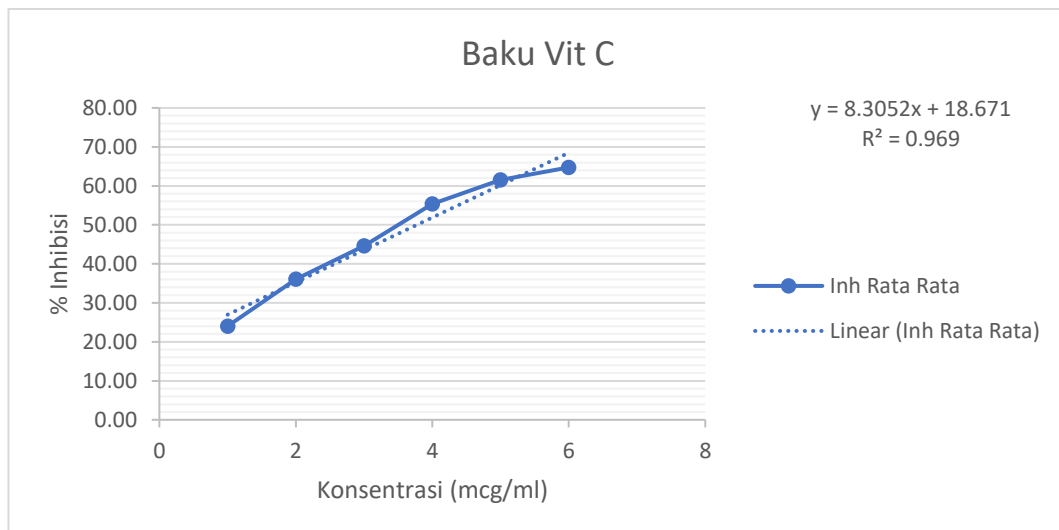


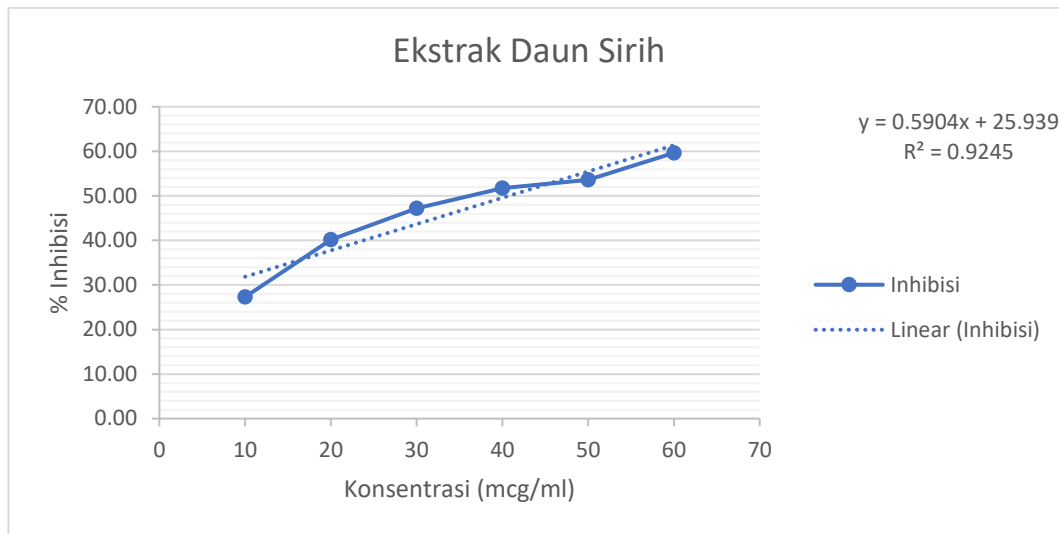
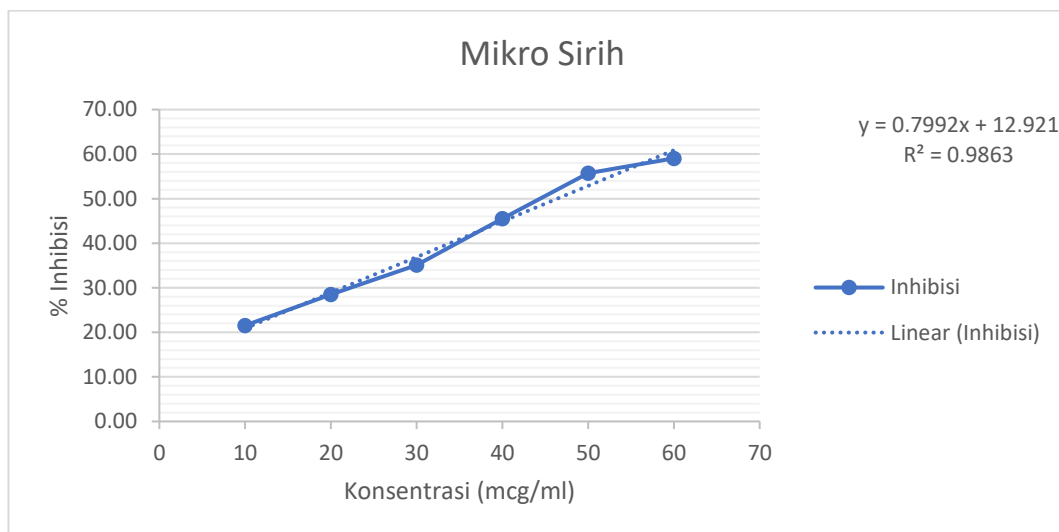


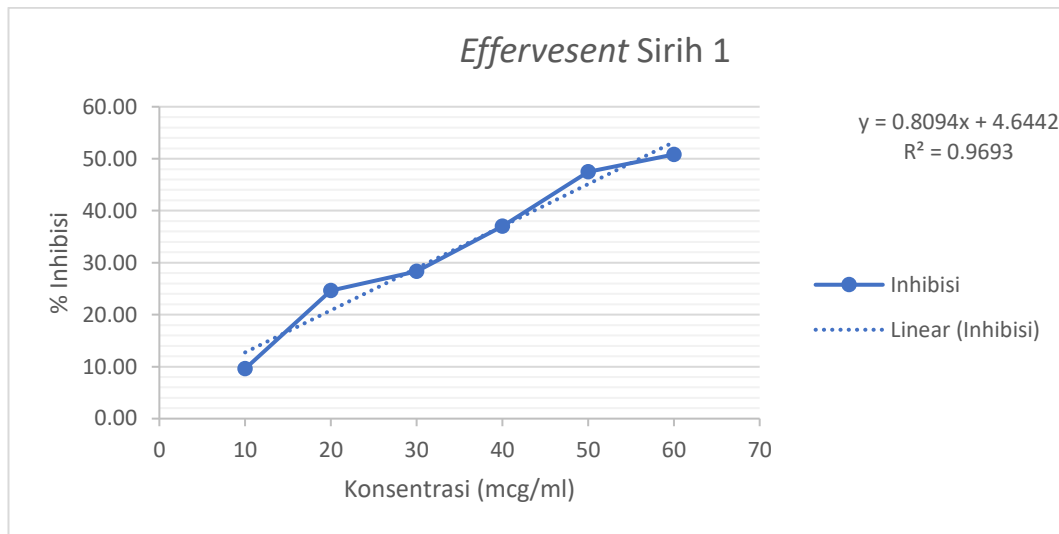
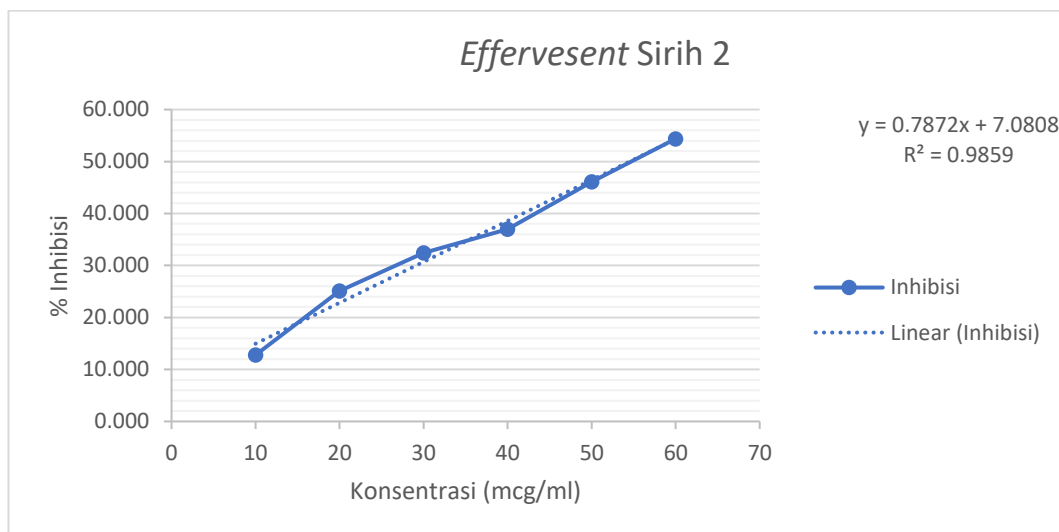
Lampiran 12. Sediaan effervescent

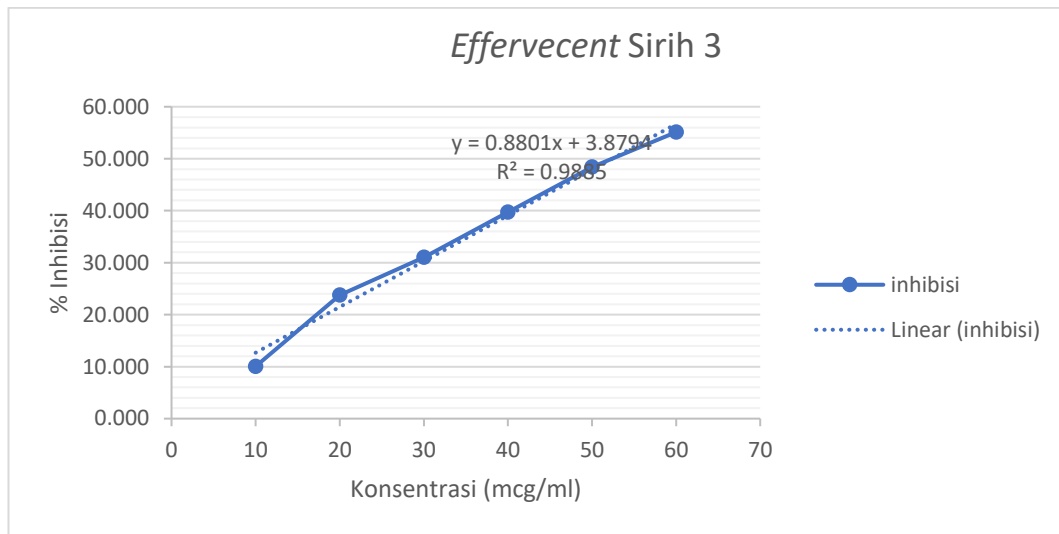


Lampiran 13. Kurva baku vitamin c



Lampiran 14. Kurva ekstrak**Lampiran 15.** Kurva mikrokapsul

Lampiran 16. Kurva sediaan effervescent 1**Lampiran 17.** Kurva sediaan effervescent 2

Lampiran 18. Kurva sediaan effervescent 3

Lampiran 19. Hasil Turnitin mandiri

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MAULANA_211FF03024.pdf

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Lampiran 20. Kartu bimbingan

« Cari Tugas Akhir

Q

◀ Kembali ke Daftar

+ Tambah

Detail (/siakad/data_ta/detail/7779)

Bimbingan (/siakad/list_bimbingan/7779)

Rekap Percakapan Bimbingan (/siakad/list_bimbingankonsultasi/list/7779)

Syarat Ujian (/siakad/set_cekskripsi/7779)

Jadwal Ujian (/siakad/list_ujianta/7779)

Riwayat Nilai Ujian (/siakad/data_nilaiujianta/detail/7779)

Nilai Akhir (/siakad/data_nilaita/detail/7779)

NIM
211FF03024

Nama Mahasiswa
ICHSAN MAULANA

Program Studi
SI Farmasi

Jenis TA
Skripsi

Periode Mulai
2024 Ganjil

SKS Lulus
149 SKS

Tgl. Mulai
4 Maret 2025

Judul Tugas Akhir
Formulasi dan evaluasi mikrokapsul ekstrak daun sirih hijau (piper betle) dalam sediaan granul effervescent sebagai antioksidan

Tahap
Sidang Akhir/ Komprehensif (Ujian)

Status
Selesai

No	Tanggal	Dosen Pembimbing	Topik	Disetujui	Aksi
1	21 April 2025	apt. Deny Puriyani Azhary, M.Si	progres penelitian	✓	 
1	10 April 2025	Reza Pratama, S.Farm., M.Farm.	diskusi mengenai pembuatan sediaan	✓	 
2	22 April 2025	apt. Deny Puriyani Azhary, M.Si	progres penelitian	✓	 
2	11 April 2025	Reza Pratama, S.Farm., M.Farm.	diskusi mengenai formulasi granul effervescent	✓	 
3	24 April 2025	apt. Deny Puriyani Azhary, M.Si	progres penelitian	✓	 
3	12 April 2025	Reza Pratama, S.Farm., M.Farm.	diskusi perhitungan	✓	 
4	16 April 2025	Reza Pratama, S.Farm., M.Farm.	diskusi mengenai formulasi 1 granul effervescent	✓	 
4	25 April 2025	apt. Deny Puriyani Azhary, M.Si	progres penelitian	✓	 
5	28 April 2025	apt. Deny Puriyani Azhary, M.Si	diskusi evaluasi granul effervescent	✓	 
5	17 April 2025	Reza Pratama, S.Farm., M.Farm.	diskusi evaluasi 1 granul effervescent	✓	 
6	4 Mei 2025	apt. Deny Puriyani Azhary, M.Si	Kemajuan	✓	 
6	21 April 2025	Reza Pratama, S.Farm., M.Farm.	diskusi mengenai formula 2 granul effervescent	✓	 
7	14 Mei 2025	apt. Deny Puriyani Azhary, M.Si	Diskusi	✓	 
7	22 April 2025	Reza Pratama, S.Farm., M.Farm.	diskusi evaluasi 2 granul effervescent	✓	 

No	Tanggal	Dosen Pembimbing	Topik	Disetujui	Aksi
8	24 April 2025	Reza Pratama, S.Farm., M.Farm.	diskusi mengenai formula 3 granul effervescent	✓	 
8	30 Mei 2025	apt. Deny Puriyani Azhary, M.Si	Diskusi	✓	 
9	25 April 2025	Reza Pratama, S.Farm., M.Farm.	diskusi evaluasi 3 granul effervescent	✓	 
10	29 April 2025	Reza Pratama, S.Farm., M.Farm.	Kemajuan	✓	 

Lampiran 21. Daftar riwayat hidup**Biodata Diri**

Nama	: Ichsan Maulana
Alamat	: Dsn. Lanjung No 21 RT 01 Rw 02 Desa Tanjungsari Kec. Tanjungsari Kab. Sumedang
Kode Pos	: 45362
No Telp	: 0813-2103-2975
Email	: Ichsan150203@gmail.com
Jenis Kelamin	: Laki-laki
Tempat, Tanggal Lahir	: Sumedang, 15 Febuari 2003
Agama	: Islam
Pendidikan	: SDN 1 Tanjungsari : SMPN 1 Tanjungsari : SMAN 1 Tanjungsari : Universitas Bhakti Kencana