

LAMPIRAN

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Lampiran 2 Kartu bimbingan

1. Dosen Pembimbing Utama



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 Utama	Apt. Deny Puriyanti Azhary, M.Si
Nama Mahasiswa	Lastri Erlinda Sinaga
NPM	201FF03048
Bidang Ilmu	Farmasetika dan Teknologi Farmasi

N o	Hari/Tanggal	Waktu	Tempat	Materi	Paraf Dosen
1	19 Maret 2024	11.00 – Selesai	Via wa	Pembahasan bahan	<i>Deny</i>
2	20 Maret 2024	12.00 – Selesai	Via wa	Pembahasan prosedur	<i>Deny</i>
3	25 Maret 2024	10.00 – Selesai	Kampus UIBK	Memahas prosedur	<i>Deny</i>
4	29 April 2024	10.00- Selesai	Via gmeet	Presentasi kemajuan 1 dan membahas beberapa prosedur dan yang di butuhkan	<i>Deny</i>
5	3 mei 2024	16.00 Selesai	Via Wa	Pembahasan bahan	<i>Deny</i>
6	7 mei 2024	10. 00 – Selesai	Via Wa	Prosedur dan formula	<i>Deny</i>
7	8 mei 2024	10.00- Selesai	Via Wa	Melaporkan formulasi	<i>Deny</i>
8	14 mei 2024	07. 00- Selesai	Via Wa	Membahas freeze dry	<i>Deny</i>
9.	17 mei 2024	13.00 – Selesai	ITB	Pembahasan evaluasi yang harus di lakukan	<i>Deny</i>
10	22 mei 2024	14.00 - Selesai	Via Wa	Diskusi Kemajuan	<i>Deny</i>
11	25 mei 2024	09.00 - Selesai	Zoom	Seminar KK	<i>Deny</i>
12	29 mei 2024	08.00 - Selesai	Via Wa	Diskusi Kemajuan	<i>Deny</i>
13	30 mei 2024	08.00 - Selesai	Via Wa	Diskusi Kemajuan	<i>Deny</i>
14	31 mei 2024	12.00 - Selesai	Via Wa	Diskusi Kemajuan	<i>Deny</i>
15	4 juni 2024	15.00 - Selesai	Via Wa	Diskusi Kemajuan	<i>Deny</i>
16	7 juni 2024	13.00 - Selesai	Via Wa	Diskusi Kemajuan	<i>Deny</i>
17	10 juni 2024	14.00 - Selesai	Via Wa	Diskusi Kemajuan	<i>Deny</i>
18	11 juni 2024	10.00 - Selesai	Via Wa	Diskusi Kemajuan	<i>Deny</i>

19	12 juni 2024	08.00 - Selesai	Rumah	Diskusi Kemajuan	<i>Selesai</i>
20	20 juni 2024	08.00 - Selesai	Via Wa	Diskusi Kemajuan	<i>Selesai</i>
21	21 juni 2024	16.30 - Selesai	Kampus	Diskusi Kemajuan	<i>Selesai</i>
22	27 juni 2024	08.00 - Selesai	Via Wa	Diskusi Kemajuan	<i>Selesai</i>
23	28 juni 2024	01.00 - Selesai	Via Wa	Diskusi Kemajuan	<i>Selesai</i>
21	11 juli 2024	13.00 - Selesai	Kampus ubk	Diskusi bab 4	<i>Selesai</i>

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

Lampiran 3 CoA (Certificate of Analysis) Bahan Aktif dan Eksipien

COA Ekstrak Kulit Manggis

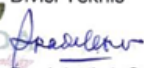


SERTIFIKAT ANALISIS

Nomor : 240333089b
Nama Sampel : Ekstrak Kulit Buah Manggis
Uji : Organoleptik, Total Flavonoid
Metode : Spectrophotometry
Tanggal : 23 Maret 2024
Permintaan : Lastri Erlinda Sinaga
NIM : 201FF03048
Institusi : Fak. Farmasi Universitas Bhakti Kencana

Hasil Uji

Parameter Uji	Hasil	Metode
Warna	Coklat tua	Organoleptik
Aroma	Khas	Organoleptik
Rasa	Pahit	Organoleptik
Total Flavonoid	49,09 mgQE/g	Spectrophotometry

Divisi Teknis

Pradekatiwi, S.Si.

[illegible]

Preparasi Sampel Ekstrak :

Timbang dengan seksama 50 mg sampel uji, masukkan dalam labu godog, tambahkan 10 ml asam chloride 2 N. Refluk selama 30 menit kemudian dinginkan. Ekstraksi dengan 10 ml dietil eter, ambil fase dietil eter. Ulangi ekstraksi 2 kali. Uapkan fase dietil eter dengan hembusan gas nitrogen hingga kering. Tambahkan 0,3 ml natrium nitrit 5%. Setelah 5 menit tambahkan 0,6 ml aluminium chloride 10%, tunggu 5 menit, tambahkan 2 ml natrium hidroksida 1 M. Addkan dengan aquades hingga 10 ml dengan labu takar. Pindahkan ke dalam kuvet, tetap serapan pada panjang gelombang 510 nm.

$$\text{Total Flavonoid} = \frac{\text{Hasil Pembacaan (ppm)}}{\text{Berat sampel (g)} \times 1000} \times \text{Vol. Add Akhir (ml)}$$

Total Flavonoid Equivalent Quercetin metode Spektrofotometri

Sampel	Replikasi	Berat Ekstrak (g)	Add (ml)	Pengenceran (x)	Conc. Sampel (ppm)	Hasil Pembacaan (ppm)	Kadar (% b/b)	Kadar Rata-rata (% b/b)
Ekstrak Kulit Buah Manggis	1	0,2003	10	1	20.030,0	40,733	0,203	0,20
	2	0,2012	10	1	20.120,0	40,452	0,201	

COA Etil Selulosa

HONEST

SHANGHAI HONEST CHEM CO.,LTD
ROOM 204, No.889 YISHAN ROAD, SHANGHAI, 200233, CHINA
Tel: (0086-21)54012006 / 54012007, Fax: (0086-21)54012008

Certificate of Analysis

Product name:	Ethyl Cellulose (EC)
Grade: N-100	Batch No.: 20230502
CAS No.: 9004-57-3	Quantity: 3000 kg
Manufacturing Date: 2023.05.02	Exp. Date: 2026.05.01
Report date: 2023.05.03	Shelf life: 3 years

Items	Standard	Result
Appearance	White powder	White powder
Ethoxy Content, %	47.5-49.5	48.6
Viscosity, mpa.s	100-120	108
Loss on drying, %	3.0 Max	0.6
Residue on Ignition, %	0.3 Max	0.1
Conclusion:		

Signature: Wang Qian 王倩 QA Manager Liu Lin 刘凌

SHANGHAI HONEST CHEM CO., LTD.

COA PVA (polivinil Alkohol)

Sigma-Aldrich

3050 Spruce Street, Saint Louis, MO 63103, USA
 Website: www.sigmaaldrich.com
 Email USA: techserv@sial.com
 Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name: Mowiol® 8-88 - Mw ~67,000

Product Number: 81383
 Batch Number: BCCH7821
 Brand: ALDRICH
 CAS Number: 9002-89-5
 Quality Release Date: 13 JUN 2022

$$\left[\text{CH}_2 - \text{CH}(\text{OH}) \right]_n$$

Test	Specification	Result
Appearance (Color)	White to Faint Yellow	Faint Yellow
Appearance (Form)	Crystals	Crystals
Residue on Ignition	≤ 0.5 %	0.4 %
Infrared Spectrum	Conforms to Structure	Conforms
Viscosity (Rotation) 20 °C, 4 % in H ₂ O	7 - 9 mPa.s	8 mPa.s
Miscellaneous Assay	86.7 - 88.7	87.7
Degree of Hydrolysis in % Mol		

Dr. R. Schwenninger

Dr. Reinhold Schwenninger
 Quality Assurance
 Buchs, Switzerland CH

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.



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COA DPPH



Certificate of Analysis

08/02/2023(JE)

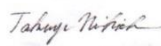
TOKYO CHEMICAL INDUSTRY CO.,LTD.
4-10-1 Nihonbashi-Honcho, Chuo-ku, Tokyo 103-0023 Jap

Chemical Name: 1,1-Diphenyl-2-picrylhydrazyl Free Radical		Lot: U6GJC
Product Number: D4313		
CAS RN: 1898-86-4		

Tests	Results	Specifications
Appearance	Black powder	Black powder to crystal
Purity(HPLC)	99.0 area%	min. 97.0 area%

TCI Lot numbers are 4-5 characters in length. Characters listed after the first 4-5 characters are control numbers for internal purpose only.
The contents of the specifications are subject to change without advance notice. The specification values displayed here are the most up to date values. There may be cases where the product labels display a different specification, however, the product quality still meets the latest specification.

Customer Service:
TOKYO CHEMICAL INDUSTRY CO., LTD
E-mail: globalbusiness@TCIchemicals.com


Takuya Nishioka
Quality Assurance Department Manager

COA Metanol P.A



Certificate of Analysis

1.06009.2500 Methanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur
Batch 11258409

	Spec. Values		Batch Values	
Purity (GC)	≥ 99.9	%	99.9	%
Identity (IR)	conforms		conforms	
Appearance	clear		clear	
Color	≤ 10	Hazen	< 5	Hazen
Solubility in water	conforms		conforms	
Acidity	≤ 0.0002	meq/g	0.0001	meq/g
Alkalinity	≤ 0.0002	meq/g	< 0.0002	meq/g
Density (d 20 °C/20 °C)	0.791 - 0.793		0.793	
Boiling point	64 - 65	°C	64	°C
Benzene (impurity A) (GC)	≤ 2	ppm	< 1	ppm
Ethanol (GC)	≤ 0.05	%	< 0.01	%
Acetone	≤ 0.001	%	≤ 0.001	%
Acetaldehyde	≤ 0.001	%	≤ 0.001	%
Formaldehyde	≤ 0.001	%	≤ 0.001	%
Readily carbonizable substances	conforms		conforms	
Carbonyl compounds (as CO)	≤ 0.001	%	≤ 0.001	%
Chloride (Cl)	≤ 0.5	ppm	≤ 0.5	ppm
Sulfate (SO ₄)	≤ 1	ppm	≤ 1	ppm
Substances reducing potassium permanganate (as O)	≤ 0.00025	%	≤ 0.00025	%
Ag (Silver)	≤ 0.000002	%	≤ 0.000002	%
Al (Aluminium)	≤ 0.00005	%	≤ 0.00005	%
As (Arsenic)	≤ 0.000002	%	≤ 0.000002	%
Au (Gold)	≤ 0.000002	%	≤ 0.000002	%
Ba (Barium)	≤ 0.00001	%	≤ 0.00001	%
Be (Beryllium)	≤ 0.000002	%	≤ 0.000002	%
Bi (Bismuth)	≤ 0.000002	%	≤ 0.000002	%
Ca (Calcium)	≤ 0.00005	%	≤ 0.00005	%
Cd (Cadmium)	≤ 0.000005	%	≤ 0.000005	%
Co (Cobalt)	≤ 0.000002	%	≤ 0.000002	%
Cr (Chromium)	≤ 0.000002	%	≤ 0.000002	%
Cu (Copper)	≤ 0.000002	%	≤ 0.000002	%
Fe (Iron)	≤ 0.00001	%	≤ 0.00001	%
Ga (Gallium)	≤ 0.000002	%	≤ 0.000002	%
In (Indium)	≤ 0.000002	%	≤ 0.000002	%
Li (Lithium)	≤ 0.000002	%	≤ 0.000002	%
Mg (Magnesium)	≤ 0.00001	%	≤ 0.00001	%
Mn (Manganese)	≤ 0.000002	%	≤ 0.000002	%
Mo (Molybdenum)	≤ 0.000002	%	≤ 0.000002	%
Ni (Nickel)	≤ 0.000002	%	≤ 0.000002	%
Pb (Lead)	≤ 0.00001	%	≤ 0.00001	%
Pt (Platinum)	≤ 0.000005	%	≤ 0.000005	%

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.

Page 1 of 2

Lampiran 4 Skrining fitokimia

Skrining Fitokimia Ekstrak Kulit Manggis					
					
Alkaloid	Flavonoid	Saponin	Kuinson	Tanin	Steroid/triterpenoid

Lampiran 5 Proses pencampuran mikropartikel

Proses pencampuran mikropartikel



Sediaan di lemari asam untuk menghilangkan etanol



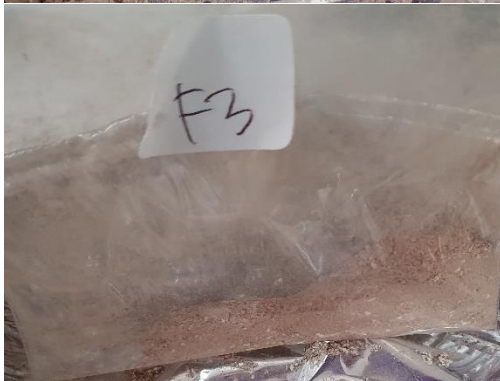
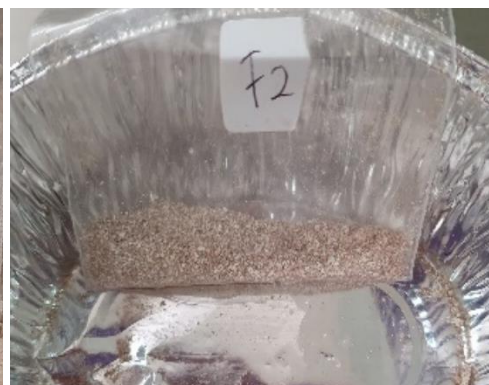
Proses pemisahan larutan dengan endapan



Freezdry



Hasil freezdry



Lampiran 6 Perhitungan Evaluasi Mikropartikel

3.5.5.1 Efisiensi Enkapsulasi

Rumus : $\frac{\text{jumlah yang dibutuhkan}}{\text{jumlah ekstrak yang ada}} \times \text{hasil freezdry}$

$$\text{Formula 1} = \frac{20}{250} \times 327.7 = 26.2 \text{ mg}$$

$$\text{Formula 2} = \frac{20}{200} \times 622.7 = 62.27 \text{ mg}$$

$$\text{Formula 3} = \frac{20}{150} \times 404.6 = 53.94 \text{ mg}$$

Jumlah ekstrak di dalam mikropartikel

$$\frac{\text{hasil freezdry}}{\text{jumlah yang ditimbang}} \times \text{rata - rata}$$

$$F1 = \frac{327}{26} \times 2.81 = 35.34$$

$$F2 = \frac{622}{62} \times 3.16 = 31.70$$

$$F3 = \frac{404}{53} \times 2.64 = 20.12$$

Formula 1

Sam pel	Absor bansi	ax	b	X	rata - rata	Standar Deviasi	jumlah ekstrak di mikropa rtikel	jumla h ekstr ak form ulasi	efisien enkaps ulasi
form ula 1 A	0,811	0,0 525	0,0 157	15,14 857	15,2819 0476	0,1438 0637	188	250	75,2
form ula 1 B	0,817			15,26 286					
form ula 1 C	0,826			15,43 429					

Formula 2

Sam pel	Absor bansi	ax	b	X	rata- rata	Standar Deviasi	jumlah ekstrak di mikropa rtikel	jumla h ekstr ak form ulasi	efisien enkaps ulasi
form ula 2 A	0,695	0,0 525	0,0 157	12,93 905	13,1485 7143	1,31731 8791	131	200	65,5
form ula 2 B	0,643			11,94 857					
form ula 2 C	0,780			14,55 81					

Formula 3

Sam pel	Absor bansi	ax	b	X	rata - rata	Standar Deviasi	jumlah ekstrak di mikropa rtikel	jumla h ekstr ak form ulasi	efisien enkaps ulasi
form ula 3 A	0,605	0,0 525	0,0 157	11,22 476	11,5358 7302	0,27094 0804	87	150	58
form ula 3 B	0,628			11,66 286					
form ula 3 C	0,631			11,72					

Lampiran 7 Dokumentasi Hasil Evaluasi

Larutan ekstrak kulit manggis (baku)



Efisiensi enkapsulasi



F1



F2



F3

Ukuran partikel

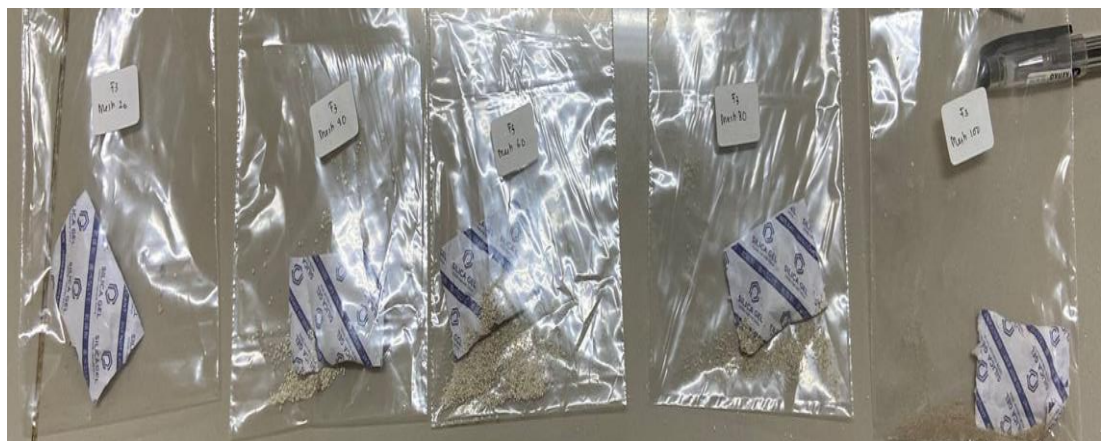
F1



F2

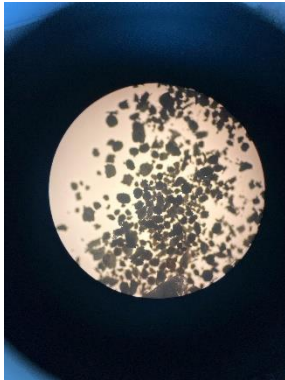


F3

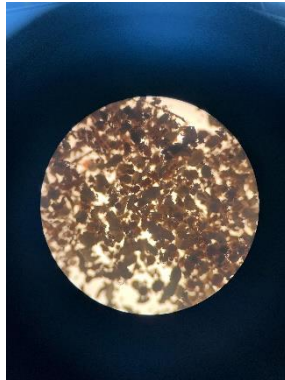


Mikroskop optik

Formula 1



Formula 2



Formula 3



Lampiran 8 Daftar Riwayat hidup

**Data Pribadi**

Nama : Lastri Erlinda Sinaga

Alamat : Perum Hegarmanah Indah RT 01 RW 10 Kec
Cikancung Kab Bandung

Kode Pos : 40396

Email : Lastrierlindasinaga@gmail.com

Jenis Kelamin : Perempuan

Tanggal Kelahiran : Bandung, 04 April 20001

Warga Negara : Indonesia

Agama : Kristen

Pendidikan : SDN 10 Cicalengka
SMPN 1 Baleendah
SMAN 1 Baleendah
Universitas Bhakti Kencana Bandung

