

LAMPIRAN

Lampiran 1 Certificate of analylsis (CoA)

a. PVP K30



Product Information

Revision : 03
Date of Revision: 08.02.2014

Polyvinyl pyrrolidone (PVP) K-30

MB102

For Molecular Biology

Product Identifier

CAS No.	: 9003-39-8
Molecular Formula	: $(C_4H_5NO)_n$
Molecular Weight	: ~ 40,000
Synonym	: Povidone
HS Code	: 3905 99 90
Storage	: Below 30°C
Shelf life	: 4 years

Technical Specification

Appearance	: White to yellowish-white hygroscopic powder or flakes
Solubility	: 100 mg soluble in 1 mL of water
pH (5% in water at 25°C)	: 3.00 - 5.00
DNases	: None detected
RNases	: None detected
FTIR	: Matches with the standard pattern
Sulphated ash	: <= 0.10%
Water (K.F.)	: <= 5.00%
Nitrogen content (anhydrous substance)	: 11.50 - 12.80%

Safety Information

UN No.	: Not dangerous goods
Class	: -
Packing Group	: -
RTECS	: TR8370000
WGK	: 1

b. Avicel

JRS PHARMA & GUJARAT MICROWAX PRIVATE LIMITED

FLOCEL 102
Microcrystalline Cellulose Ph. Eur. NF, E 400 (I), FCC

CERTIFICATE OF ANALYSIS

Batch no.: N1620 Manufacturing site: Nandasan, India
Re-valuation date: November-2025
Manufacturing date: November-2021

Description
Appearance: White or almost white, fine or granular, slightly hygroscopic powder.
Solubility: Practically insoluble in water, acetone, anhydrous ethanol and toluene, dilute acids and sodium hydroxide solution (50 g/L).

Characteristics	Acceptance criteria	Batch result	Reference
Identification A	IR scan conforms	Passes	Ph. Eur., NF
Identification B	Violet-blue color	Passes	Ph. Eur., NF
Identification C	Degree of polymerization max. 350	Passes	Ph. Eur., NF
Conductivity	Max. 75 µS/cm	41 µS/cm	Ph. Eur., NF
Ether-soluble substances	Max. 0.05 %	0.01%	Ph. Eur., NF
Heavy metals	Max. 10 ppm	< 10 ppm	JRS Method
Loss on drying	Max. 5.0 %	3.88%	Ph. Eur., USP
pH	5.0 - 7.0	6.41	Ph. Eur., USP
Solubility	Dissolves completely	Passes	Ph. Eur.
Sulphated ash / residue on ignition	Max. 0.05 %	0.02%	Ph. Eur., USP
Water-soluble substances	Max. 0.24 %	0.12%	Ph. Eur., NF
TAMC (Total aerobic microbial count)	Max. 10 ³ CFU/g	25 CFU/g	Ph. Eur., USP
TYMC (Total yeast and mold count)	Max. 20 CFU/g	< 10 CFU/g	Ph. Eur., USP
Escherichia coli	Absent in 1 g	Absent	Ph. Eur., USP
Pseudomonas aeruginosa	Absent in 1 g	Absent	Ph. Eur., USP
Salmonella species	Absent in 1 g	Absent	Ph. Eur., USP
Staphylococcus aureus	Absent in 1 g	Absent	Ph. Eur., USP
Bulk density	0.27 - 0.34 g/mL	0.29 g/mL	NF
Sieve analysis (% Retention)			JRS Method
> 250 µm (60 mesh)	< 8.0 %	2.14%	
> 75 µm (200 mesh)	> 45.0 %	55.72%	

The raw materials, manufacturing process and product do not contain any of the solvents listed in Residual Solvents (Ph. Eur., <3.4>, USP <467>).
Elements listed in ICH Q3D Guideline for elemental impurities are not used in manufacturing and not analyzed per batch; detailed information is available on request.

For JRS PHARMA & GUJARAT MICROWAX PVT. LTD.
Chemist Quality Control / Anil Patel

Manufacturer:
INDIA
JRS PHARMA & GUJARAT MICROWAX
PRIVATE LIMITED

Sales + Marketing:
WORLDWIDE
JRS PHARMA GmbH+Co. KG

USA + CANADA
JRS PHARMA LP

c. Maltodextrin

ORIGINAL DATE: AUG. 08, 2023
QINHUANGDAO LIHUA STARCH CO., LTD
 ADD: NO. 28 LIHUA STREET, FUKING DISTRICT, QINHUANGDAO CITY, HEBEI PROVINCE CHINA.

CERTIFICATE OF ANALYSIS

PRODUCT NAME	MALTODEXTRIN DE 10-12	REPORT NO.	1
BATCH NO.	20230729	PACKING	25KG/BAG
QUANTITY(MT)	55000KGS	PRODUCING DATE	JUL. 29, 2023
PRODUCTION UNIT	MALTO DEXTRIN WORKSHOP	DATE OF EXPIRY	JUL. 28, 2025
TEST BASE	GB/T 20882.6-2021	TEST OBJECT	ALL

TEST ITEM	TEST BASE	TEST RESULT
CHARACTER	SLIGHT HYGROSCOPIC POWDER, NO VISIBLE IMPURITIES BY NORMAL EYESIGHT, WHITE OR SLIGHT YELLOW, POSSESS MALTODEXTRIN ODOR, NOT SWEET OR SLIGHT SWEET, NO ABNORMAL TASTE	SLIGHT HYGROSCOPIC POWDER, NO VISIBLE IMPURITIES BY NORMAL EYESIGHT, WHITE OR SLIGHT YELLOW, POSSESS MALTODEXTRIN ODOR, NOT SWEET OR SLIGHT SWEET, NO ABNORMAL TASTE
DE VALUE, % (M/M)	10-12	11.7
DPI, %	≤5	<5
DP2, %	≤15	<15
WATER, % (M/M)	≤6	5.3
SOLUBILITY	≥98	99.2
PH VALUE	4.0-7.0	5.5
SULPHATE ASH % (M/M)	≤0.5	0.1
ARSENIC(AS), MG/KG	≤0.5	0.0
SO ₂ MG/KG	≤10	0.0
PB, MG/KG	≤0.5	0.1
COLIFORM(CFU/G)	≤10	NONE
TOTAL PLATE COUNT (CFU/G)	≤3000	10
E. COLI	NONE	NONE
SHIGELLA (/25G)	NONE	NONE
STAPHYLOCOCCUS AUREUS(/25G)	NONE	NONE
SALMONELLA	NEGATIVE	NEGATIVE

CONCLUSION: THE PRODUCT COMPLY WITH THE SPECIFICATION OF GB/T 20882.6-2021
 MINISTER: CONG WEI CHECKER: LIU KUN EXAMINANT: SONG LI LI
 MANUFACTURER: QINHUANGDAO LIHUA STARCH CO., LTD.

d. Methanol PA

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
Bornane (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 C)	≤ 0.00025 %	≤ 0.00025 %
Ag (Silver)	≤ 0.000002 %	≤ 0.000002 %
Al (Aluminium)	≤ 0.000005 %	≤ 0.000005 %
Au (Arsenic)	≤ 0.000002 %	≤ 0.000002 %
Au (Gold)	≤ 0.000002 %	≤ 0.000002 %
Ba (Barium)	≤ 0.000001 %	≤ 0.000001 %
Ba (Beryllium)	≤ 0.000002 %	≤ 0.000002 %
Ba (Bismuth)	≤ 0.000002 %	≤ 0.000002 %
Ca (Calcium)	≤ 0.000005 %	≤ 0.000005 %
Ca (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)	≤ 0.000001 %	≤ 0.000001 %
Ga (Gallium)	≤ 0.000002 %	≤ 0.000002 %
In (Indium)	≤ 0.000002 %	≤ 0.000002 %
Li (Lithium)	≤ 0.000002 %	≤ 0.000002 %
Mg (Magnesium)	≤ 0.000001 %	≤ 0.000001 %
Mn (Manganese)	≤ 0.000002 %	≤ 0.000002 %
Nb (Niobium)	≤ 0.000002 %	≤ 0.000002 %
Ni (Nickel)	≤ 0.000002 %	≤ 0.000002 %
Pb (Lead)	≤ 0.000001 %	≤ 0.000001 %
Pt (Platinum)	≤ 0.000005 %	≤ 0.000005 %

Merck KGaA
 Cooperation with General Partners
 Friedlander Straße 250
 65203 Darmstadt, Germany

The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

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Certificate of Analysis

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

	Spec. Values	Batch Values
Sn (Tin)	≤ 0.00001 %	≤ 0.00001 %
Ti (Titanium)	≤ 0.000002 %	≤ 0.000002 %
Tl (Thallium)	≤ 0.000002 %	≤ 0.000002 %
V (Vanadium)	≤ 0.000002 %	≤ 0.000002 %
Zn (Zinc)	≤ 0.000001 %	≤ 0.000001 %
Zr (Zirconium)	≤ 0.000002 %	≤ 0.000002 %
Evaporation residue	≤ 0.0005 %	≤ 0.0001 %
Water	≤ 0.05 %	≤ 0.01 %

ACS, ISO, Reag Ph Eur

Date of release (DD.MM.YYYY) 01.12.2023
 Minimum shelf life (DD.MM.YYYY) 31.10.2027

Jasminette David
 Responsible laboratory manager quality control

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

Merck KGaA
 Cooperation with General Partners
 Friedlander Straße 250
 65203 Darmstadt, Germany

The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

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e. DPPH



Certificate of Analysis

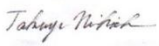
08/02/2023(JE)

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		
Product Number: D4313		Lot: U6GJC
CAS RN: 1989-66-4		
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

Lampiran 2 Hasil determinasi

A. Beras hitam organik

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.45/HB/02/2024.

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

Nama : Ai Siti Komariah
 NIM/NIP : 201FF03155
 Instansi : Universitas Bhakti Kencana.
 Lokasi : Bandung.

Telah melakukan identifikasi tumbuhan, dengan No. Koleksi: -
 Tanggal Koleksi : 22 Februari 2024.

Hasil Identifikasi
 Nama Ilmiah : *Oryza sativa L. indica*
 Sinonim : *Oryza sativa L. var. glutinosa*
 Nama Lokal : Beras hitam Organik
 Suku/Famili : Poaceae

Klasifikasi (Hirarki Taksonomi)
 Kingdom : Plantae
 Divisi : Magnoliophyta
 Class : Liliopsida
 Ordo : Poales
 Famili : Poaceae
 Genus : *Oryza*
 Species : *Oryza sativa 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, 23 Februari 2024.

Identifikator, 

LABORATORIUM TAKSONOMI TUMBUHAN
 JURUSAN BIOLOGI FMIPA-UNPAD

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

B. Kelor

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.46/HB/02/2024.

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

Nama : Ai Siti Komariah
 NIM/NIP : 201FF03155
 Instansi : Universitas Bhakti Kencana.
 Lokasi : Bandung.

Telah melakukan identifikasi tumbuhan, dengan No. Koleksi: -
 Tanggal Koleksi : 22 Februari 2024.

Hasil Identifikasi
 Nama Ilmiah : *Moringa oleifera Lam.*
 Sinonim : *Moringa zeylanica Burmann*
 Nama Lokal : Daun kelor
 Suku/Famili : Moringaceae

Klasifikasi (Hirarki Taksonomi)
 Kingdom : Plantae
 Divisi : Magnoliophyta
 Class : Magnoliopsida
 Ordo : Brassicales
 Famili : Moringaceae
 Genus : *Moringa*
 Species : *Moringa oleifera Lam.*

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, 23 Februari 2024.

Identifikator, 

LABORATORIUM TAKSONOMI TUMBUHAN
 JURUSAN BIOLOGI FMIPA-UNPAD

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

Lampiran 3 Alat dan bahan

A. Alat

		
Tip Biru & Kuning	Timbangan Analitik	
		
Kuvet	Spektrofotometri UV - Vis	Labu ukur
		
Granul flow tester		Jangka sorong <i>digital</i>
		
Moisture balance	Oven pengering	Mortir dan stemper

		
Alat Coating		Ekstruder - Sferonisasi
		
Grinder	pH meter	Magnetic stirrer
		
Gelas beaker	Gelas ukur	

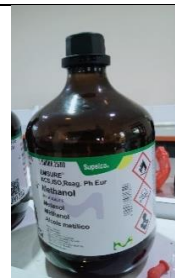
B. Bahan



Tepung beras hitam organik



Ekstrak daun kelor



Methanol P.A



Aquadest



Opadry 3%



Avicel 102

Lampiran 4 Dokumentasi ekstraksi kelor

 Pengumpulan Bahan	 Penimbangan
 Sortasi basah	 Pencucian
 Pengovenan	 Sortasi kering



Penimbangan simplisia kering



Grinder simplisia



Serbuk simplisia hasil grinder



Maserasi pengulangan 3 kali



Penyaringan

Pemekatan ekstrak menggunakan *Rotary evaporator*

Hasil ekstraksi

Lampiran 5 Dokumentasi prosedur ekstraksi, sferonisasi dan coating

		
Pengumpulan Bahan	Penimbangan bahan	Pencampuran bahan
		
Masa kepal	Ekstrudat	Ekstrudat dimasukkan ke Sferonizer
		
Sferoid		Pengeringan di oven
		
Proses <i>Coating</i> (penyalutan)	Hasil pengeringan setelah disalut	Hasil Akhir setelah disalut

Lampiran 6 Dokumentasi Izin kode etik



**KOMISI ETIK PENELITIAN KESEHATAN
UNIVERSITAS BHAKTI KENCANA**

Jl. Sockamo - Hatta 754, Bandung
Telp : 022-7830 760 / 022-7830-768
Email : komisi.etik@bku.ac.id



KOMISI ETIK PENELITIAN KESEHATAN
HEALTH RESEARCH ETHICS COMMITTEE
UNIVERSITAS BHAKTI KENCANA
BHAKTI KENCANA UNIVERSITY

KETERANGAN LAYAK ETIK
DESCRIPTION OF ETHICAL APPROVAL
"ETHICAL APPROVAL"
151/09.KEPK/UBK/VII/2024

Protokol penelitian yang diusulkan oleh :
The research protocol proposed by :

Peneliti Utama : Ai Siti Komariah
Principal investigator

Nama institusi : Universitas Bhakti Kencana
Name of institution

Dengan judul :
Title

**Formulasi Dan Evaluasi Edible Cosmetic Sedimen Pelet Instan Dari Kombinasi Beras Hitam Organik
(*Oryza Sativa L. Indica*) Dan Ekstrak Daun Kelor (*Moringa Oleifera*) Sebagai Antioksidan**

*Formulation and Evaluation of Edible Cosmetic Instant Pellet Preparation from a Combination of Organic
Black Rice (*Oryza Sativa L. Indica*) and Moringa Leaf Extract (*Moringa Oleifera*) as Antioxidants*

Dinyatakan layak etik sesuai (tujuh) standar WHO 2011, yaitu 1) Nilai Sosial, 2) Nilai Ilmiah, 3) Pemerataan
Beban dan Manfaat, dan 4) Risiko, 5) Bujukan atau eksploitasi, 6) Kerahasiaan atau Privacy, 7) Persetujuan
Setelah Penjelasan, yang merujuk pada Pedoman CIOMS 2016. Hal ini seperti yang ditunjukkan oleh terpenuhinya
indikator setiap standar.

*Declared to be ethically appropriate in accordance to 7 (seven) WHO 2011 standards, 1) Social Value, 2) Scientific
Value, 3) Equitable Assessment and Benefit, 4) Risk, 5) Persuasion/Exploitation, 6) Confidentiality and
Privacy, and Informed Consent, referring to the 2016 CIOMS guidelines. This is as indicated by the fulfillment
of the indicators of each standards.*

Pernyataan Lait Etik ini berlaku selama kurun waktu 30 Juli 2024 sampai dengan tanggal 30 Juli 2025.

This declaration of ethics applies during the period 30 th July 2024 until 30 th July 2025.

30 Juli 2024
Profesor and Chairperson



R. Nedy Kusdikawati, S.Kp., M.Kes
NIDK. 02019010336

Lampiran 7 Evaluasi sediaan

A. Uji Organoleptik

Formula	Ekstrudat	Sferoid	
		Basah	Kering
F0			
F1			
F2			
F3			

B. Uji Kadar Air (Susut Pengeringan)

Formula	Kadar Air (LoD)			
	Replikasi 1	Replikasi 2	Replikasi 3	Rata – rata
F0				$1,54 \pm 0,61$
F1				$3,37 \pm 0,31$
F2				$3,64 \pm 0,40$
F3				$3,19 \pm 0,32$

C. Uji Laju Alir

Formula	Hasil	Rata – Rata
F0		$8,16 \pm 0,12$
F1		$9,09 \pm 0,02$

F2		$7,66 \pm 0,02$
F3		$7,26 \pm 0,06$

D. Uji Sudut Istirahat

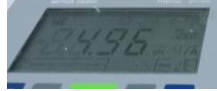
Formula	Hasil	Rata – Rata
F0		$11,55 \pm 0,66$
F1		$10,69 \pm 0,41$
F2		$11,56 \pm 0,58$
F3		$11,10 \pm 0,25$

E. Uji Waktu Melarut

Formula	Hasil	Rata – Rata
F0		$1,18 \pm 0,05$
F1		$1,39 \pm 0,08$
F2		$1,46 \pm 0,03$
F3		$1,37 \pm 0,02$

F. Uji pH

Formula	pH			
	Replikasi 1	Replikasi 2	Replikasi 3	Rata - rata
F0		5, 20	5, 17	$5,18 \pm 0,01$

F1				$5,26 \pm 0,12$
F2				$5,45 \pm 0,01$
F3				$5,58 \pm 0,20$
Ekstrak				$4,95 \pm 0,01$
Beras				$6,22 \pm 0,07$

G. Uji IC50



❖ Beras

Konsentrasi (ppm)	Ln konsentrasi	Absorbansi			Rata - rata	Abs. Sampel	% Inhibisi	IC50 (ug/ml)
		1	2	3				
60	4.09434	0.29987	0.29274	0.29406	0.29556	0.29138	56.17210	22.54995
50	3.91202	0.31352	0.31364	0.31329	0.31348	0.30930	53.47563	
40	3.68888	0.32455	0.32622	0.32759	0.32612	0.32194	51.57486	
30	3.40120	0.33032	0.33382	0.33357	0.33257	0.32839	50.60467	
20	2.99573	0.34569	0.34494	0.34604	0.34556	0.34138	48.65126	
10	2.30259	0.35437	0.35654	0.35277	0.35456	0.35038	47.29701	

❖ Kelor

Konsentrasi (ppm)	Ln konsentrasi	Absorbansi			Rata - rata	Abs. Sampel	% Inhibisi	IC50 (ug/ml)
		1	2	3				
60	4.094344562	0.21677	0.2117	0.21469	0.21439	0.21021	68.38142	9.73821
50	3.912023005	0.23669	0.23769	0.23502	0.23647	0.23229	65.06022	
40	3.688879454	0.25418	0.25041	0.25092	0.25184	0.24766	62.74831	
30	3.401197382	0.27548	0.27531	0.27547	0.27542	0.27124	59.20099	
20	2.995732274	0.29588	0.29453	0.29616	0.29552	0.29134	56.17711	
10	2.302585093	0.32962	0.32761	0.32919	0.32881	0.32463	51.17074	

❖ Vit C

Konsentrasi (ppm)	Ln konsentrasi	Absorbansi			Rata - rata	Abs. Sampel	% Inhibisi	IC50 (ug/ml)
		1	2	3				
70	4.248	0.276	0.276	0.277	0.276	0.272	69.28	6.20
60	4.094	0.307	0.305	0.306	0.306	0.302	65.93	
50	3.912	0.271	0.269	0.268	0.269	0.265	70.07	
40	3.689	0.335	0.337	0.338	0.337	0.332	62.47	
30	3.401	0.351	0.35	0.351	0.351	0.346	60.89	
20	2.996	0.358	0.357	0.355	0.357	0.352	60.208	

❖ Formula 1

Konsentrasi (ppm)	Ln konsentrasi	Absorbansi			Rata - rata	Abs. Sampel	% Inhibisi	IC50 (ug/ml)
		1	2	3				
60	4.094344562	0.242	0.244	0.245	0.244	0.239	63.977	7.577
50	3.912023005	0.257	0.267	0.259	0.261	0.257	61.370	
40	3.688879454	0.275	0.272	0.272	0.273	0.269	59.565	
30	3.401197382	0.292	0.291	0.293	0.292	0.288	56.707	
20	2.995732274	0.294	0.297	0.296	0.296	0.291	56.156	
10	2.302585093	0.321	0.318	0.325	0.321	0.317	52.295	

❖ Formula 2

Konsentrasi (ppm)	Ln konsentrasi	Absorbansi			Rata - rata	Abs. Sampel	% Inhibisi	IC50 (ug/ml)
		1	2	3				
60	4.094344562	0.295	0.292	0.292	0.293	0.289	56.557	20.993
50	3.912023005	0.299	0.294	0.306	0.300	0.295	55.554	
40	3.688879454	0.318	0.318	0.318	0.318	0.314	52.796	
30	3.401197382	0.328	0.329	0.331	0.329	0.325	51.092	
20	2.995732274	0.348	0.348	0.338	0.345	0.340	48.785	
10	2.302585093	0.357	0.356	0.358	0.357	0.353	46.930	

❖ Formula 3

Konsentrasi (ppm)	Ln konsentrasi	Absorbansi			Rata - rata	Abs. Sampel	% Inhibisi	IC50 (ug/ml)
		1	2	3				
60	4.094	0.282	0.285	0.280	0.282	0.278	58.161	11.776
50	3.912	0.301	0.298	0.295	0.298	0.294	55.805	
40	3.689	0.306	0.310	0.303	0.306	0.302	54.551	
30	3.401	0.316	0.312	0.311	0.313	0.309	53.548	
20	2.996	0.326	0.325	0.327	0.326	0.322	51.593	
10	2.303	0.335	0.339	0.335	0.336	0.332	50.039	

Lampiran 8 Hasil uji statistik evaluasi sediaan

A. Uji Kadar Air (Susut Pengerinan)

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
sebelum	.542	2	6	.608
sesudah	.333	2	6	.729

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
sebelum	Between Groups	.222	2	.111	98.762	.000
	Within Groups	.007	6	.001		
	Total	.228	8			
sesudah	Between Groups	.131	2	.065	.554	.601
	Within Groups	.708	6	.118		
	Total	.839	8			

Multiple Comparisons

LSD

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
sebelum	F1	F2	-.36667*	.02735	.000	-.4336	-.2997
		F3	-.28333*	.02735	.000	-.3503	-.2164
	F2	F1	.36667*	.02735	.000	.2997	.4336
		F3	.08333*	.02735	.023	.0164	.1503
	F3	F1	.28333*	.02735	.000	.2164	.3503
		F2	-.08333*	.02735	.023	-.1503	-.0164
sesudah	F1	F2	-.26667	.28050	.378	-.9530	.4197
		F3	-.02333	.28050	.936	-.7097	.6630
	F2	F1	.26667	.28050	.378	-.4197	.9530

	F3		.24333	.28050	.419	-.4430	.9297
F3	F1		.02333	.28050	.936	-.6630	.7097
	F2		-.24333	.28050	.419	-.9297	.4430

*, The mean difference is significant at the 0.05 level.

B. Uji Laju Alir

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
sebelum	4.529	2	6	.063
sesudah	4.132	2	6	.074

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
sebelum	Between Groups	.130	2	.065	20.168	.002
	Within Groups	.019	6	.003		
	Total	.150	8			
sesudah	Between Groups	5.562	2	2.781	2157.621	.000
	Within Groups	.008	6	.001		
	Total	5.570	8			

Multiple Comparisons

LSD

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
sebelum	F1	F2	.22667*	.04643	.003	.1131	.3403
		F3	.27667*	.04643	.001	.1631	.3903
	F2	F1	-.22667*	.04643	.003	-.3403	-.1131
		F3	.05000	.04643	.323	-.0636	.1636
	F3	F1	-.27667*	.04643	.001	-.3903	-.1631
		F2	-.05000	.04643	.323	-.1636	.0636
sesudah	F1	F2	1.42667*	.02931	.000	1.3549	1.4984
		F3	1.83333*	.02931	.000	1.7616	1.9051
	F2	F1	-1.42667*	.02931	.000	-1.4984	-1.3549
		F3	.40667*	.02931	.000	.3349	.4784

F3	F1	-1.83333*	.02931	.000	-1.9051	-1.7616
	F2	-.40667*	.02931	.000	-.4784	-.3349

*, The mean difference is significant at the 0.05 level.

C. Uji Sudut Istirahat

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
sebelum	8.142	2	6	.020
sesudah	1.511	2	6	.294

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
sebelum	Between Groups	27.701	2	13.851	91.645	0
	Within Groups	0.907	6	0.151		
	Total	28.608	8			
sesudah	Between Groups	1.127	2	0.564	3.036	0.123
	Within Groups	1.114	6	0.186		
	Total	2.241	8			

Multiple Comparisons

LSD

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
sebelum	F1	F2	-1.24000*	.31742	.008	-2.0167	-.4633
		F3	-4.18333*	.31742	.000	-4.9600	-3.4066
	F2	F1	1.24000*	.31742	.008	.4633	2.0167
		F3	-2.94333*	.31742	.000	-3.7200	-2.1666
	F3	F1	4.18333*	.31742	.000	3.4066	4.9600
		F2	2.94333*	.31742	.000	2.1666	3.7200
sesudah	F1	F2	-.86667*	.35181	.049	-1.7275	-.0058
		F3	-.41333	.35181	.285	-1.2742	.4475
	F2	F1	.86667*	.35181	.049	.0058	1.7275
		F3	.45333	.35181	.245	-.4075	1.3142
	F3	F1	.41333	.35181	.285	-.4475	1.2742
		F2	-.86667*	.35181	.049	-1.7275	-.0058

F2	-.45333	.35181	.245	-1.3142	.4075
----	---------	--------	------	---------	-------

*. The mean difference is significant at the 0.05 level.

D. Uji Waktu Melarut

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
sebelum	1.472	2	6	.302
sesudah	4.204	2	6	.072

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
sebelum	Between Groups	.014	2	.007	.412	.680
	Within Groups	.102	6	.017		
	Total	.116	8			
sesudah	Between Groups	.012	2	.006	2.190	.193
	Within Groups	.017	6	.003		
	Total	.029	8			

Multiple Comparisons

LSD

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
sebelum	F1	F2	-.05333	.10663	.635	-.3143	.2076
		F3	-.09667	.10663	.400	-.3576	.1643
	F2	F1	.05333	.10663	.635	-.2076	.3143
		F3	-.04333	.10663	.699	-.3043	.2176
	F3	F1	.09667	.10663	.400	-.1643	.3576
		F2	.04333	.10663	.699	-.2176	.3043
sesudah	F1	F2	-.06333	.04286	.190	-.1682	.0415
		F3	.02333	.04286	.606	-.0815	.1282
	F2	F1	.06333	.04286	.190	-.0415	.1682
		F3	.08667	.04286	.090	-.0182	.1915
	F3	F1	-.02333	.04286	.606	-.1282	.0815
		F2	-.08667	.04286	.090	-.1915	.0182

E. Uji pH

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
sebelum	11.866	2	6	.008
sesudah	5.773	2	6	.040

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
sebelum	Between Groups	1.575	2	.787	6.735	.029
	Within Groups	.701	6	.117		
	Total	2.276	8			
sesudah	Between Groups	.152	2	.076	4.055	.077
	Within Groups	.112	6	.019		
	Total	.264	8			

Multiple Comparisons

LSD

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
sebelum	F1	F2	-.90667*	.27917	.018	-1.5898	-.2236
		F3	-.86667*	.27917	.021	-1.5498	-.1836
	F2	F1	.90667*	.27917	.018	.2236	1.5898
		F3	.04000	.27917	.891	-.6431	.7231
	F3	F1	.86667*	.27917	.021	.1836	1.5498
		F2	-.04000	.27917	.891	-.7231	.6431
sesudah	F1	F2	-.18667	.11179	.146	-.4602	.0869
		F3	-.31667*	.11179	.030	-.5902	-.0431
	F2	F1	.18667	.11179	.146	-.0869	.4602
		F3	-.13000	.11179	.289	-.4035	.1435
	F3	F1	.31667*	.11179	.030	.0431	.5902
		F2	.13000	.11179	.289	-.1435	.4035

*. The mean difference is significant at the 0.05 level.

F. Uji Hedonik

Tests of Between-Subjects Effects

Dependent Variable: penampilan

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	55.589 ^a	61	.911	2.452	.000
Intercept	2960.556	1	2960.556	7965.822	.000
panelis	54.111	59	.917	2.468	.000
sampel	1.478	2	.739	1.988	.142
Error	43.856	118	.372		
Total	3060.000	180			
Corrected Total	99.444	179			

a. R Squared = .559 (Adjusted R Squared = .331)

Post Hoc Tests**penampilan**Duncan^{a,b}

sampel	N	Subset 1
Formula 3	60	3.93
Formula 1	60	4.08
Formula 2	60	4.15
Sig.		.067

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error)

= .372.

a. Uses Harmonic Mean Sample Size

= 60.000.

b. Alpha = 0,05.

Tests of Between-Subjects Effects

Dependent Variable: warna

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	73.672 ^a	61	1.208	4.550	.000
Intercept	2888.006	1	2888.006	10879.964	.000
panelis	72.994	59	1.237	4.661	.000
sampel	.678	2	.339	1.277	.283
Error	31.322	118	.265		
Total	2993.000	180			
Corrected Total	104.994	179			

a. R Squared = .702 (Adjusted R Squared = .547)

Post Hoc Tests

warna

Duncan^{a,b}

sampel	N	Subset 1
Formula 2	60	3.93
Formula 1	60	4.00
Formula 3	60	4.08
Sig.		.135

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error)

= .265.

a. Uses Harmonic Mean Sample Size

= 60.000.

b. Alpha = 0,05.

Tests of Between-Subjects Effects

Dependent Variable: rasa

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	61.706 ^a	61	1.012	5.504	.000
Intercept	2745.606	1	2745.606	14937.670	.000
panelis	61.394	59	1.041	5.661	.000
sampel	.311	2	.156	.846	.432
Error	21.689	118	.184		
Total	2829.000	180			
Corrected Total	83.394	179			

a. R Squared = .740 (Adjusted R Squared = .605)

Post Hoc Tests

Rasa

Duncan^{a,b}

sampel	N	Subset 1
Formula 1	60	3.85
Formula 2	60	3.92
Formula 3	60	3.95
Sig.		.232

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error)

= .184.

Tests of Between-Subjects Effects

Dependent Variable: sensasi

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	56.783 ^a	61	.931	5.046	.000
Intercept	2952.450	1	2952.450	16005.625	.000
panelis	56.550	59	.958	5.196	.000
sampel	.233	2	.117	.632	.533
Error	21.767	118	.184		
Total	3031.000	180			
Corrected Total	78.550	179			

a. R Squared = .723 (Adjusted R Squared = .580)

Post Hoc Tests

sensasi

Duncan^{a,b}

sampel	N	Subset 1
Formula 1	60	4.00
Formula 2	60	4.07
Formula 3	60	4.08
Sig.		.321

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error)
= .184.

a. Uses Harmonic Mean Sample Size
= 60.000.

b. Alpha = 0,05.

Tests of Between-Subjects Effects

Dependent Variable: keberterimaan_keseluruhan

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	51.322 ^a	61	.841	4.269	.000
Intercept	3009.422	1	3009.422	15269.978	.000
panelis	50.578	59	.857	4.350	.000
sampel	.744	2	.372	1.889	.156
Error	23.256	118	.197		
Total	3084.000	180			
Corrected Total	74.578	179			

a. R Squared = .688 (Adjusted R Squared = .527)

Post Hoc Tests

keberterimaan_keseluruhan

Duncan^{a,b}

sampel	N	Subset 1
Formula 1	60	4.00
Formula 3	60	4.12
Formula 2	60	4.15
Sig.		.082

Means for groups in homogeneous subsets are displayed.

Based on observed means.

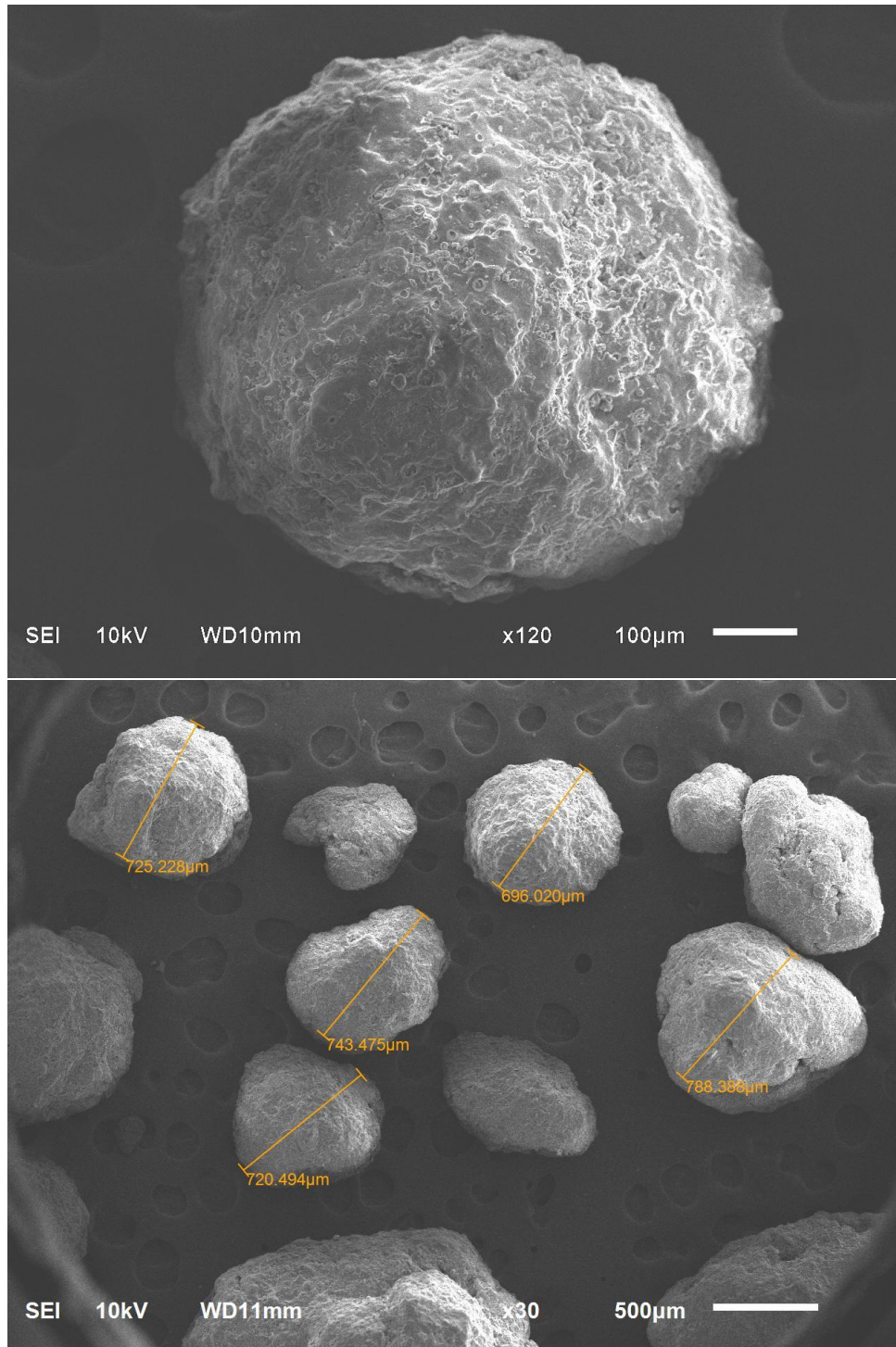
The error term is Mean Square(Error)

= .197.

a. Uses Harmonic Mean Sample Size

= 60.000.

b. Alpha = 0,05.

Lampiran 9 Hasil uji SEM

Lampiran 10 Hasil Cek Plagiarisme

[turnitin] AI SITI SKRIPSI BERES			
ORIGINALITY REPORT			
9%	8%	3%	5%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS
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Lampiran 11 Kartu Bimbingan

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

**Fakultas Farmasi
Universitas
Bhakti Kencana**

KARTU BIMBINGAN TUGAS AKHIR I/TUGAS AKHIR II

Pembimbing Utama	: Apt. Yanni Dhiani Mardhani, M.Sc				
Nama Mahasiswa	: AI SITI KOMARIAH				
NPM	: 201FF03155				
Bidang Ilmu	: FARMASETIKA DAN TEKNOLOGI FARMASI				

No	Hari/Tanggal	Waktu	Tempat	Materi	Paraf Dosen
1	Kamis / 15 Februari 2024	15.30	Online chatt	Koordinasi izin determinasi	[Signature]
2	Jum'at / 16 Februari 2024	08.22	Rumah dosen utama	Koordinasi bahan zat aktif dan tandatangan determinasi	[Signature]
3	Selasa / 19 Maret 2024	10.56	Online chatt	Koordinasi pengujian skrining fitokimia	[Signature]
4	Selasa / 2 April 2024	10.17	Zoom meeting	Presentasi hasil skrining fitokimia dan perubahan formula	[Signature]
5	Senin / 29 April 2024	09.30 s/d selesai	Zoom meeting	Presentasi progres kemajuan internal	[Signature]
6	Selasa / 21 Mei 2024	11.45	Online chatt	Konfirmasi hasil penelitian sementara dan rencana penambahan essen pada sediaan	[Signature]
7	Selasa / 20 Mei 2024	12.00 s/d selesai	Ruang s/d selesai dosen	Presentasi hasil F1 dan F2 untuk evaluasi yang telah dilakukan	[Signature]
8	Kamis / 5 Juli 2024	13.00 s/d selesai	Ruang dosen	Presentasi Hasil Pengujian	[Signature]
9	Rabu, 10 Juli 2024	13.00 s/d selesai	Ruang dosen	Revisi draft skripsi	[Signature]

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

**Fakultas Farmasi
Universitas
Bhakti Kencana**

KARTU BIMBINGAN TUGAS AKHIR I/TUGAS AKHIR II

Pembimbing Serta	: Apt. Drs. Rahmat Santoso, M.Si.,MH.,Kes				
Nama Mahasiswa	: AI SITI KOMARIAH				
NPM	: 201FF03155				
Bidang Ilmu	: FARMASETIKA DAN TEKNOLOGI FARMASI				

NO	HARI/TANGGAL	WAKTU	TEMPAT	MATERI	
1.	16 Februari 2024	16.00	Ruangan dosen serta	Pengecekan zat aktif dan rencana perubahan formula	[Signature]
2.	5 Maret 2024	16.00	Online chatt	Pengecekan ekstrak kelor sebelum skrining fitokimia	[Signature]
3.	23 Maret 2024	10.00 s/d selesai	Ruangan dosen serta	Revisi progres formula dan fixasi bahan formula	[Signature]
4.	25 Mei 2024	13.00	Laboratorium dosbing	Konfirmasi pengujian uk partikel menggunakan SEM atau ikut di DKSH Jakarta	[Signature]
5.	18 April 2024	12.00 WIB	Lab dosbing	progres hasil penelitian 1	[Signature]
6.	27 April 2024	16.00 WIB	Lab dosbing	Konsultasi evaluasi sediaan	[Signature]
7.	31 Mei 2024	13.00 WIB	lab dosen	progres hasil penelitian 2	[Signature]
8.	11 Juni 2024	10.00 WIB	online chatt	penyerahan draft skripsi dan hasil penelitian	[Signature]

Lampiran 12 Curriculum Vitae



Ai Siti Komariah, S.Farm

Telp : 0817 - 0359 - 4754
 Email : aisitikomariah32@gmail.com
 LinkedIn : Ai Siti Komariah
 Alamat : Bandung - Jawa Barat

Tentang Saya

Sebagai lulusan farmasi yang berdedikasi dengan latar belakang akademis dan praktisi pada bidang pelayanan dan penelitian. Selain pencapaian akademis, aktif terlibat dalam berbagai organisasi selama masa studi, yang telah memperluas kemampuan kepemimpinan, komunikasi, dan manajemen proyek. Tertarik bergabung dengan tim yang inovatif di industri farmasi dan berkontribusi secara signifikan di industri farmasi. Berkomitmen mengimplementasikan pengetahuan farmasi dan keterampilan organisasi dengan ketelitian dan dedikasi yang tinggi, saya siap menghadapi tantangan dan mendukung upaya tim dalam meningkatkan kualitas layanan kesehatan dan farmasi.

Pendidikan

2020 - 2024 | Universitas Bhakti Kencana | S1 Farmasi

- Delegasi Mahasiswa/i tingkat nasional event RAKERNAS, RAKOORNAS, PRA MUNAS dan MUNAS ISMAFARSI.
- Delegasi Mahasiswa/i tingkat wilayah, Hut ISMAFARSI, RAKOORWIL, RAKERWIL dan Sekolah kastrad
- Delegasi mahasiswa/i pengmas IAI x IDI x Farmasi UBK
- Delegasi mahasiswa/i evaluasi visi misi dan akreditasi Farmasi
- Farmasetika dan Teknologi Farmasi " Edible cosmetic sediaan pelet instan"

2018 - 2020 | SMKS BHS Sumedang | Farmasi Klinis dan Komunitas

Jurusan ini mempersiapkan siswa/i dalam pelayanan kefarmasian dan aktif terlibat dalam kegiatan kemahasiswaan

Pengalaman Kerja dan Kepemimpinan

2017 - 2018 | Praktik Kerja Lapangan | RSUD Gunung Djati Cirebon & Apotek Ciakar Sumedang

Bertanggung jawab membantu apoteker terhadap segala pelayanan kefarmasian di rawat jalan, rawat inap, IGD, OK, gudang alkes dan obat, depo produksi dan depo PTRM serta membantu pembuatan pemesanan obat dan stok opname

2020 - 2021 | Kerja | Apotek Taman Kopo Indah II Bandung

Bertanggung jawab membantu apoteker dalam melakukan pelayanan kefarmasian seperti dispensing, meracik, dan melakukan pengecekan tiap bulan, pengarsipan data dan pemesanan obat.

2023 - 2024 | Magang | MBKN KKN DIKTI Wil IV

Bertanggung jawab membantu staf pemerintahan dalam pelayanan kepada masyarakat dengan program inovasi berkelanjutan.

2022 - 2023 | BEM KEMA FF UBK | Ketua BEM

Bertanggung jawab dalam memimpin, mengelola dan mengkoordinasi kegiatan Mahasiswa Fakultas Farmasi UBK

2023 - 2024 | ISMAFARSI PRIANGAN | Staf Ahli Keuangan & Bisnis Usaha

Bertanggung jawab membantu Koordinator Wilayah dalam melakukan administrasi keuangan LEM dan pengarsipan data pembayaran iuran kas ke nasional.

Prestasi

JUARA 1 | PATIENT COUNSELING EVENT | ISMAFARSI PRIANGAN | 2021
 JUARA 1 | ESSAY COMPETITION NASIONAL | UNIVERSITAS BENGKULU | 2022
 JUARA 2 | SENI TARI | UNIVERSITAS BHAKTI KENCANA | 2023
 WINNER | MOST IMPACTFUL STUDENT | ISMAFARSI PRIANGAN | 2024
 HARAPAN 1 | MOJANG JAJAKA SUMEDANG | DISBUDPORA | 2024