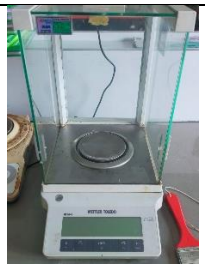
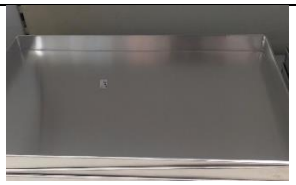
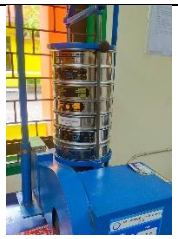
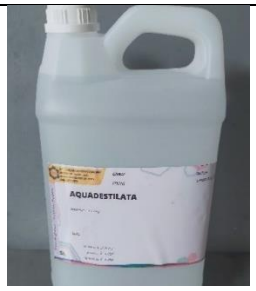
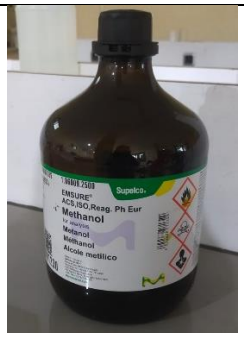
LAMPIRAN

Lampiran 1 Alat dan Bahan

Alat		
 Timbangan analitik	Ekstruder (Mesh 20)	Spheronizer
Pan coater	 Tray	Oven
Jangka sorong	Moisture balance	Flow tester
Instrumen sudut diam	 Shieve shaker	Magnetic stirrer
Spektrofotometer Uv-vis	Kuvet	Tip mikropipet

Bahan		
PVP K30	Avicel PH 102	Laktosa
Sukralosa	Maltodekstrin	 Aquadest
Opadry (HPMC)	 Methanol	Ekstrak Pegagan
Ekstrak Meniran	Ekstrak Kencur	

Lampiran 2 *Certificate of Analysis* (COA) Bahan aktif dan Eksipien Ekstrak Pegagan, Meniran, dan Kencur

LANSIDA

SERTIFIKAT HASIL UJI

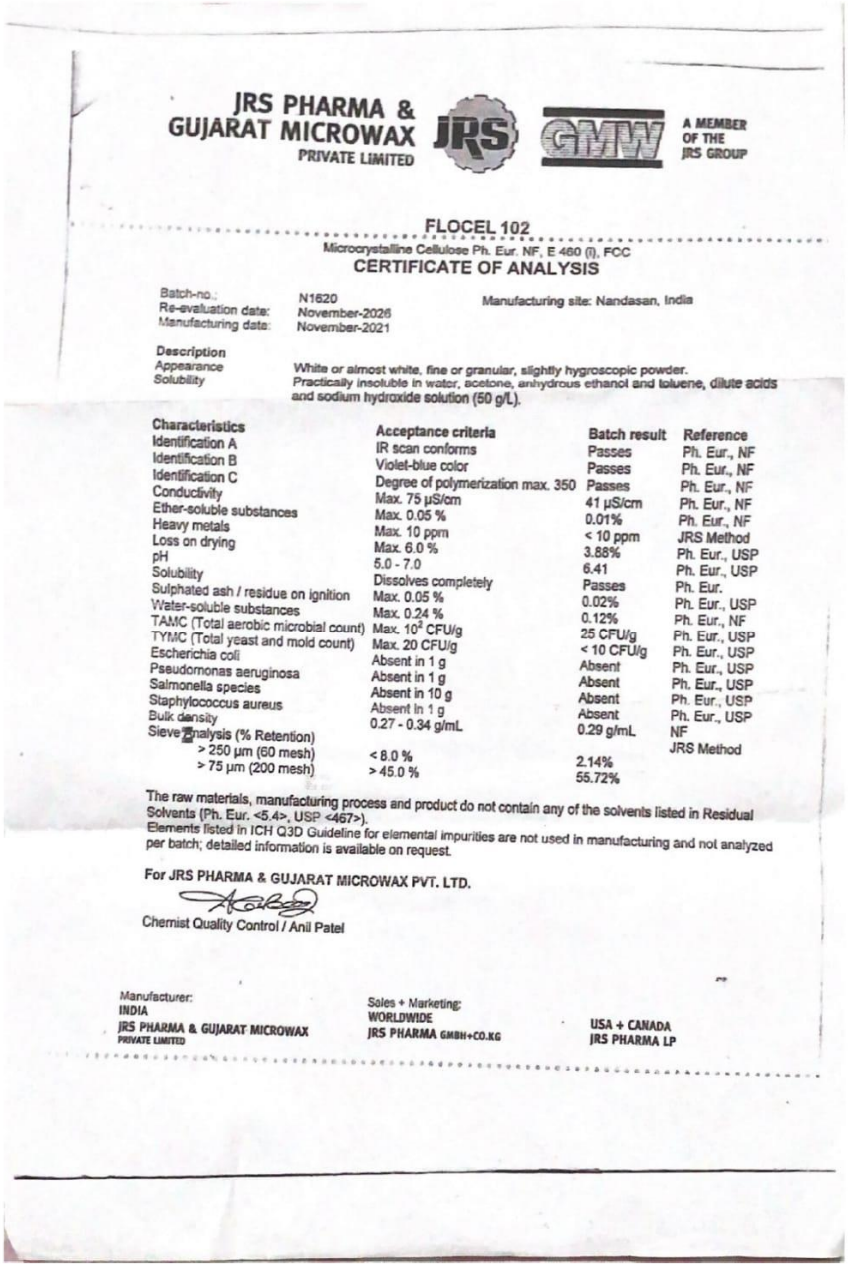
Nomor : 240733299
Nama Sampel : Ekstrak Pegagan, Ekstrak Herba Meniran, Ekstrak Rimpang Kencur
Uji : Kadar air, Kadar abu total, Kualitatif Flavonoid
Metode : Gravimetri, Thin Layer Chromatograpy
Tanggal : 8 Juli 2024
Permintaan : Shintya Putri Andini
NPM : 201FF03182
Institusi : Fakultas Farmasi Universitas Bhakti Kencana
:
Hasil Uji

Parameter Uji	Nama Sampel			Satuan
	Ekstrak Pegagan	Ekstrak Herba Meniran	Ekstrak Rimpang Kencur	
Kadar Air	4,99	4,79	4,42	% v/b
Kadar Abu Larut Air	3,00	4,91	3,73	% b/b
Kualitatif Flavonoid	Positif	Positif	Positif	-

Divisi Teknis
LANSIDA
Pradekatiwi, S.Si.

Jl. Karanglo, Bumen KG III/519 Yogyakarta 55173
Telp. 0851-0666-8808 email : lansida@yahoo.com

Avicel PH 102



JRS PHARMA & GUJARAT MICROWAX PRIVATE LIMITED

A MEMBER OF THE JRS GROUP

FLOCEL 102

Microcrystalline Cellulose Ph. Eur. NF, E 460 (i), FCC

CERTIFICATE OF ANALYSIS

Batch-no.: N1620
Re-evaluation date: November-2026
Manufacturing date: November-2021
Manufacturing site: Nandasan, India

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. 6.0 %	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. 10^2 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 10 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. <5.4>, 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

Laktosa

DFE pharma

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

Page nr. 1/2

0811342880-900001-20221010-133649-Z006-3420_FONT_01-000001

Certificate of Analysis

Customer number	: 160560	**Lot/ Batchnumber**	: 23174701
		Date of production	: 03.06.2022
Delivery number	: 811342880	**Expiry date**	: 01.06.2025
Delivery Date	: 24.10.2022	**Order number**	: 15452851
Material number	: 0743826	**Your order number**	: PH220517
Material description	: HMS Impalpable (NZ)		
	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	Pharmacopeia Harmonized Methods	cfu/g	0-100	<100
Total Yeast & Mould Count	Pharmacopeia Harmonized Methods	cfu/g	0-10	<10
Escherichia coli (10 g)	Pharmacopeia 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")

Maltodekstrin

ORIGINAL DATE: AUG. 08, 2023

QINHUANGDAO LIHUA STARCH CO., LTD

ADD: NO. ,89 LIHUA STREET, FUNING 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
DP1, %	≤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	0.1
SO_2 MG/KG	≤10	10
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

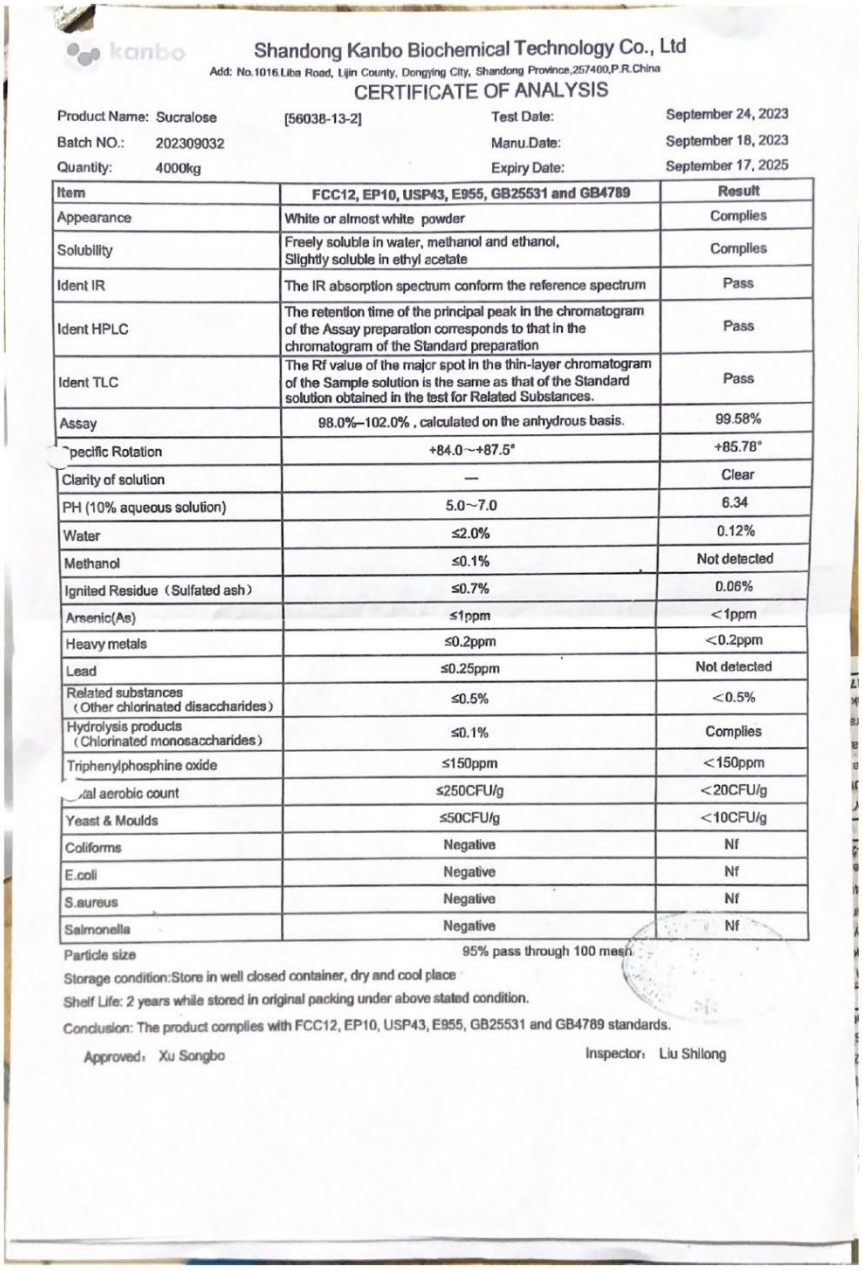
QINHUANGDAO LIHUA STARCH CO., LTD. 秦皇岛 淀粉有限公司

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.

Sukralosa



kanbo

Shandong Kanbo Biochemical Technology Co., Ltd

Add: No.1016,Liba Road, Lijin County, Dongying City, Shandong Province,257400,P.R.China

CERTIFICATE OF ANALYSIS

Product Name: Sucralose [56038-13-2] Test Date: September 24, 2023

Batch NO.: 202309032 Manu.Date: September 18, 2023

Quantity: 4000kg Expiry Date: September 17, 2025

Item	FCC12, EP10, USP43, E955, GB25531 and GB4789	Result
Appearance	White or almost white powder	Complies
Solubility	Freely soluble in water, methanol and ethanol, Slightly soluble in ethyl acetate	Complies
Ident IR	The IR absorption spectrum conform the reference spectrum	Pass
Ident HPLC	The retention time of the principal peak in the chromatogram of the Assay preparation corresponds to that in the chromatogram of the Standard preparation	Pass
Ident TLC	The Rf value of the major spot in the thin-layer chromatogram of the Sample solution is the same as that of the Standard solution obtained in the test for Related Substances.	Pass
Assay	98.0%–102.0% , calculated on the anhydrous basis.	99.58%
Specific Rotation	+84.0～+87.5°	+85.78°
Clarity of solution	—	Clear
PH (10% aqueous solution)	5.0～7.0	6.34
Water	≤2.0%	0.12%
Methanol	≤0.1%	Not detected
Ignited Residue（Sulfated ash）	≤0.7%	0.06%
Arsenic(As)	≤1ppm	<1ppm
Heavy metals	≤0.2ppm	<0.2ppm
Lead	≤0.25ppm	Not detected
Related substances （Other chlorinated disaccharides）	≤0.5%	<0.5%
Hydrolysis products （Chlorinated monosaccharides）	≤0.1%	Complies
Triphenylphosphine oxide	≤150ppm	<150ppm
Total aerobic count	≤250CFU/g	<20CFU/g
Yeast & Moulds	≤50CFU/g	<10CFU/g
Coliforms	Negative	Nf
E.coli	Negative	Nf
S.aureus	Negative	Nf
Salmonella	Negative	Nf

Particle size 95% pass through 100 mesh

Storage condition:Store in well closed container, dry and cool place

Shelf Life: 2 years while stored in original packing under above stated condition.

Conclusion: The product complies with FCC12, EP10, USP43, E955, GB25531 and GB4789 standards.

Approved: Xu Songbo Inspector: Liu Shilong

Lampiran 3 Hasil Determinasi Tanaman

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.32/HB/04/2024.

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

Nama	: Shintya Putri Andini
NIM/NIP	: 201FF03182
Instansi	: Universitas Bhakti Kencana.
Lokasi	: Bandung.

Telah melakukan identifikasi tumbuhan, dengan No. Koleksi: -

Tanggal Koleksi	: 27 April 2024.

Hasil Identifikasi

Nama Ilmiah	: ***Centella asiatica* (L.) Urb.**
Sinonim	: *Centella boninensis* Nakai ex Tuyama
Nama Lokal	: Pegagan
Suku/Famili	: Apiaceae

Klasifikasi (Hirarki Taksonomi)

Kingdom	Plantae
Divisi	Magnoliophyta
Class	Magnoliopsida
Ordo	Apiales
Famili	Apiaceae
Genus	*Centella*
Species	*Centella asiatica* (L.) Urb.

Referensi:

Backer, C. A. and Bakkuizen v/d Brink R. C Jr. 1963. Flora of Java. Wolter-Noordhoff NV. Groningen.Cronquist, Arthur. 1981. AnIntegrated System of Classification of Flowering Plants. Columbia University Press. New York
The Plant List.Website DuniaTumbuhan.http://www.theplantlist.org/tpl1.1/record/kew-158489.

Jatinangor, 29 April 2024.
Identifikator,

LABORATORIUM TAKSONOMI TUMBUHAN
JURUSAN BIOLOGI FMIPA-UNPAD

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

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.33/HB/04/2024.

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

Nama	: Shintya Putri Andini
NIM/NIP	: 201FF03182
Instansi	: Universitas Bhakti Kencana.
Lokasi	: Bandung.

Telah melakukan identifikasi tumbuhan, dengan No. Koleksi: -

Tanggal Koleksi	: 27 April 2024.

Hasil Identifikasi

Nama Ilmiah	: ***Phyllanthus niruri L.***
Sinonim	: *Phyllanthus carolinianus* Blanco
Nama Lokal	: Herba Meniran
Suku/Famili	: Phyllanthaceae

Klasifikasi (Hirarki Taksonomi)

Kingdom	Plantae
Divisi	Magnoliophyta
Class	Magnoliopsida
Ordo	Malpighiales
Famili	Phyllanthaceae
Genus	*Phyllanthus*
Species	*Phyllanthus niruri L.*

Referensi:
Backer, C. A. and Bakkuizen v/d Brink R. C Jr. 1963. Flora of Java. Wolter-Noordhoff NV. Groningen.Cronquist, Arthur. 1981. AnIntegrated System of Classification of Flowering Plants. Columbia University Press. New York
The Plant List.Website DuniaTumbuhan.http://www.theplantlist.org/tpl1.1/record/kew-158489.

Jatinangor, 29 April 2024.
Identifikator,

LABORATORIUM TAKSONOMI TUMBUHAN
JURUSAN BIOLOGI FMIPA-UNPAD

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

HERBARIUM JATINANGOR
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Gedung D2-212, Jl. Raya Bandung Sumedang Km 21 Jatinangor
Telp. 089689992695, email: phanerogamae@yahoo.com

LEMBAR IDENTIFIKASI TUMBUHAN
No.34/HB/04/2024.

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

Nama	: Shintya Putri Andini
NIM/NIP	: 201FF03182
Instansi	: Universitas Bhakti Kencana.
Lokasi	: Bandung.

Telah melakukan identifikasi tumbuhan, dengan No. Koleksi: -

Tanggal Koleksi	: 27 April 2024.

Hasil Identifikasi

Nama Ilmiah	: ***Kaempferia galanga L.***
Sinonim	: *Kaempferia humilis Salisb.*
Nama Lokal	: Rimpang Kencur
Suku/Famili	: Zingiberaceae

Klasifikasi (Hirarki Taksonomi)

Kingdom	Plantae
Divisi	Magnoliophyta
Class	Liliopsida
Ordo	Zingiberales
Famili	Zingiberaceae
Genus	Kaempferia
Species	*Kaempferia galanga L.*

Referensi:

Backer, C. A. and Bakkuizen v/d Brink R. C Jr. 1963. Flora of Java. Wolter-Noordhoff NV. Groningen.Cronquist, Arthur. 1981. AnIntegrated System of Classification of Flowering Plants. Columbia University Press. New York
The Plant List.Website DuniaTumbuhan.http://www.theplantlist.org/tpl1.1/record/kew-158489.

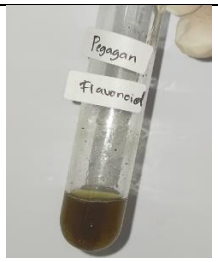
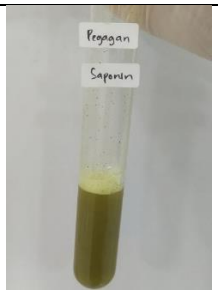
Jatinangor, 29 April 2024.

Identifikator,

LABORATORIUM TAKSONOMI TUMBUHAN
JURUSAN BIOLOGI FMIPA-UNPAD

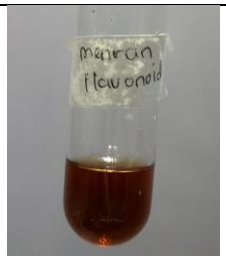
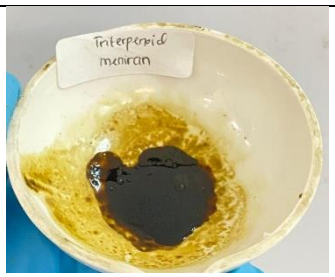
Drs. Joko Kusmoro, M.P.
NIP. 19600801 199101 1 001

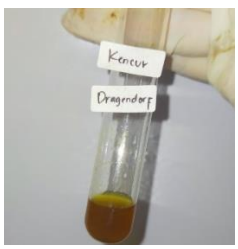
Lampiran 4 Hasil Skrining Fitokimia

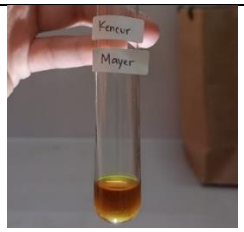
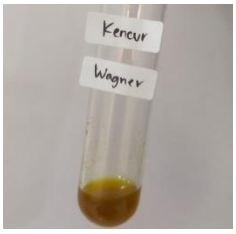
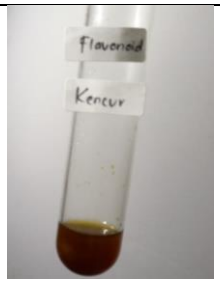
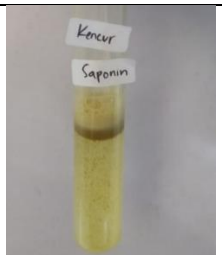
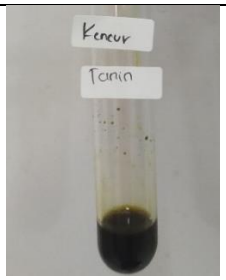
Skrining Fitokimia Ekstrak Pegagan		
Pengujian Senyawa	**Hasil**	**Keterangan**
Alkaloid : Dragendorf		(-) endapan hijau
Mayer		(+) endapan putih
Wagner		(+) endapan coklat
Flavonoid		(+) warna merah
Saponin		(+) terbentuk busa stabil

Tanin		(+) hijau kehitaman
Steroid/Triterpenoid		(+) hitam ungu

Skrining Fitokimia Ekstrak Meniran		
Pengujian Senyawa	**Hasil**	**Keterangan**
Alkaloid : Dragendorf		(+) endapan jingga
Mayer		(+) endapan putih
Wagner		(+) endapan coklat

Flavonoid		(+) warna merah
Saponin		(+) terbentuk busa stabil
Tanin		(+) hijau kehitaman
Steroid/triterpenoid		(+) hitam ungu

Skrining Fitokimia Ekstrak Kencur		
Pengujian Senyawa	**Hasil**	**Keterangan**
Alkaloid : Dragendorf		(+) warna jingga

Mayer Wagner	 	(+) endapan putih (+) endapan coklat
Flavonoid		(+) warna merah
Saponin		(+) terbentuk busa stabil
Tanin		(+) hijau kehitaman
Steroid/triterpenoid		(-) tidak terbentuk cincin ungu/hijau

Lampiran 5 Proses Pembuatan

<table>
<tr>
<td>Pencampuran bahan aktif dan eksipien
 </td>
<td>Masa kepal diekstruder menggunakan mesh 20
 </td>
<td>Ekstrudat dilanjutkan dengan sferonisasi
 </td>
</tr>
<tr>
<td>Sferoid dikeringkan dalam oven
 </td>
<td>Penyalutan dengan alat pan coater

 </td>
<td>Mikrokapsul didiamkan pada suhu kamar
 </td>
</tr>
</table>

Lampiran 6 Hasil Evaluasi

Organoleptik	Susut pengeringan
Laju alir	Sudut diam
Distribusi ukuran partikel	Kenaikan bobot
Waktu larut	Volume sedimentasi

Lampiran 7 Hasil Analisis Statistika SPSS

- **Evaluasi Susut Pengeringan Sebelum Penyalutan**

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Susut_pengeringan	Formula 0	.362	3	.	.803	3	.122
	Formula 1	.287	3	.	.930	3	.489
	Formula 2	.304	3	.	.907	3	.407
	Formula 3	.231	3	.	.980	3	.730
	Formula 4	.376	3	.	.772	3	.049

a. Lilliefors Significance Correction

Descriptives

Susut_pengeringan

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 0	3	1.2300	.15620	.09018	.8420	1.6180	1.13	1.41
Formula 1	3	2.2867	.41477	.23947	1.2563	3.3170	1.95	2.75
Formula 2	3	1.9367	.04726	.02728	1.8193	2.0541	1.90	1.99
Formula 3	3	2.1133	.34847	.20119	1.2477	2.9790	1.74	2.43
Formula 4	3	1.4667	.19348	.11170	.9860	1.9473	1.35	1.69
Total	15	1.8067	.46931	.12118	1.5468	2.0666	1.13	2.75

Test of Homogeneity of Variances

Susut_pengeringan

Levene Statistic	df1	df2	Sig.
2.693	4	10	.093

ANOVA

Susut_pengeringan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.368	4	.592	8.281	.003
Within Groups	.715	10	.072		
Total	3.084	14			

Multiple Comparisons

Dependent Variable: Susut_pengeringan

Bonferroni

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 0	Formula 1	-1.05667*	.21834	.007	-1.8386	-.2747
	Formula 2	-.70667	.21834	.089	-1.4886	.0753
	Formula 3	-.88333*	.21834	.023	-1.6653	-.1014
	Formula 4	-.23667	.21834	1.000	-1.0186	.5453
Formula 1	Formula 0	1.05667*	.21834	.007	.2747	1.8386
	Formula 2	.35000	.21834	1.000	-.4320	1.1320
	Formula 3	.17333	.21834	1.000	-.6086	.9553
	Formula 4	.82000*	.21834	.037	.0380	1.6020
Formula 2	Formula 0	.70667	.21834	.089	-.0753	1.4886
	Formula 1	-.35000	.21834	1.000	-1.1320	.4320
	Formula 3	-.17667	.21834	1.000	-.9586	.6053
	Formula 4	.47000	.21834	.568	-.3120	1.2520
Formula 3	Formula 0	.88333*	.21834	.023	.1014	1.6653
	Formula 1	-.17333	.21834	1.000	-.9553	.6086
	Formula 2	.17667	.21834	1.000	-.6053	.9586
	Formula 4	.64667	.21834	.142	-.1353	1.4286
Formula 4	Formula 0	.23667	.21834	1.000	-.5453	1.0186
	Formula 1	-.82000*	.21834	.037	-1.6020	-.0380
	Formula 2	-.47000	.21834	.568	-1.2520	.3120
	Formula 3	-.64667	.21834	.142	-1.4286	.1353

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

- **Evaluasi Laju Alir Sebelum Penyalutan**

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Laju_alir	Formula 0	.176	3	.	1.000	3	.975
	Formula 1	.341	3	.	.847	3	.233
	Formula 2	.326	3	.	.873	3	.304
	Formula 3	.177	3	.	1.000	3	.963
	Formula 4	.200	3	.	.995	3	.859

a. Lilliefors Significance Correction

Descriptives

Laju_alir

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 0	3	7.3933	.44004	.25406	6.3002	8.4864	6.95	7.83
Formula 1	3	7.7733	.36937	.21326	6.8558	8.6909	7.35	8.03
Formula 2	3	7.3400	.31575	.18230	6.5556	8.1244	6.98	7.57
Formula 3	3	7.2467	1.03520	.59767	4.6751	9.8182	6.20	8.27
Formula 4	3	7.1300	.94255	.54418	4.7886	9.4714	6.15	8.03
Total	15	7.3767	.62620	.16168	7.0299	7.7234	6.15	8.27

Test of Homogeneity of Variances

Laju_alir

Levene Statistic	df1	df2	Sig.
1.086	4	10	.414

ANOVA

Laju_alir

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.710	4	.178	.371	.824
Within Groups	4.780	10	.478		

Total	5.490	14			

Multiple Comparisons

Dependent Variable: Laju_alir

Games-Howell

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 0	Formula 1	-.38000	.33170	.780	-1.8778	1.1178
	Formula 2	.05333	.31269	1.000	-1.4134	1.5200
	Formula 3	.14667	.64943	.999	-3.5874	3.8807
	Formula 4	.26333	.60056	.988	-3.0616	3.5883
Formula 1	Formula 0	.38000	.33170	.780	-1.1178	1.8778
	Formula 2	.43333	.28056	.591	-.8297	1.6964
	Formula 3	.52667	.63458	.904	-3.3667	4.4201
	Formula 4	.64333	.58448	.801	-2.8239	4.1106
Formula 2	Formula 0	-.05333	.31269	1.000	-1.5200	1.4134
	Formula 1	-.43333	.28056	.591	-1.6964	.8297
	Formula 3	.09333	.62486	1.000	-3.9358	4.1224
	Formula 4	.21000	.57390	.994	-3.3860	3.8060
Formula 3	Formula 0	-.14667	.64943	.999	-3.8807	3.5874
	Formula 1	-.52667	.63458	.904	-4.4201	3.3667
	Formula 2	-.09333	.62486	1.000	-4.1224	3.9358
	Formula 4	.11667	.80830	1.000	-3.4931	3.7264
Formula 4	Formula 0	-.26333	.60056	.988	-3.5883	3.0616
	Formula 1	-.64333	.58448	.801	-4.1106	2.8239
	Formula 2	-.21000	.57390	.994	-3.8060	3.3860
	Formula 3	-.11667	.80830	1.000	-3.7264	3.4931

Test Statistics[a,b]

	Laju_alir
Chi-Square	1.645
df	4
Asymp. Sig.	.801

a. Kruskal Wallis Test

b. Grouping Variable: Formula

- **Evaluasi Sudut Diam Sebelum Penyalutan**

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Sudut_diam	Formula 0	.208	3	.	.992	3	.826
	Formula 1	.194	3	.	.997	3	.888
	Formula 2	.202	3	.	.994	3	.851
	Formula 3	.290	3	.	.925	3	.472
	Formula 4	.316	3	.	.890	3	.355

a. Lilliefors Significance Correction

Descriptives

Sudut_diam

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 0	3	27.7900	.28618	.16523	27.0791	28.5009	27.52	28.09
Formula 1	3	26.9433	.93661	.54075	24.6167	29.2700	26.04	27.91
Formula 2	3	26.3267	.18556	.10713	25.8657	26.7876	26.15	26.52
Formula 3	3	27.7667	.30665	.17704	27.0049	28.5284	27.52	28.11
Formula 4	3	27.4067	.48758	.28150	26.1955	28.6179	27.04	27.96
Total	15	27.2467	.71910	.18567	26.8484	27.6449	26.04	28.11

Test of Homogeneity of Variances

Sudut_diam

Levene Statistic	df1	df2	Sig.
1.868	4	10	.193

ANOVA

Sudut_diam

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.589	4	1.147	4.328	.027
Within Groups	2.651	10	.265		
Total	7.240	14			

Multiple Comparisons

Dependent Variable: Sudut_diam

Bonferroni

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 0	Formula 1	.84667	.42037	.717	-.6588	2.3522
	Formula 2	1.46333	.42037	.059	-.0422	2.9688
	Formula 3	.02333	.42037	1.000	-1.4822	1.5288
	Formula 4	.38333	.42037	1.000	-1.1222	1.8888
Formula 1	Formula 0	-.84667	.42037	.717	-2.3522	.6588
	Formula 2	.61667	.42037	1.000	-.8888	2.1222
	Formula 3	-.82333	.42037	.786	-2.3288	.6822
	Formula 4	-.46333	.42037	1.000	-1.9688	1.0422
Formula 2	Formula 0	-1.46333	.42037	.059	-2.9688	.0422
	Formula 1	-.61667	.42037	1.000	-2.1222	.8888
	Formula 3	-1.44000	.42037	.065	-2.9455	.0655
	Formula 4	-1.08000	.42037	.279	-2.5855	.4255
Formula 3	Formula 0	-.02333	.42037	1.000	-1.5288	1.4822
	Formula 1	.82333	.42037	.786	-.6822	2.3288
	Formula 2	1.44000	.42037	.065	-.0655	2.9455
	Formula 4	.36000	.42037	1.000	-1.1455	1.8655
Formula 4	Formula 0	-.38333	.42037	1.000	-1.8888	1.1222
	Formula 1	.46333	.42037	1.000	-1.0422	1.9688
	Formula 2	1.08000	.42037	.279	-.4255	2.5855
	Formula 3	-.36000	.42037	1.000	-1.8655	1.1455

- **Evaluasi Susut Pengeringan Setelah Penyalutan**

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Susut_pengeringan	Formula 0	.292	3	.	.923	3	.463
	Formula 1	.301	3	.	.912	3	.424
	Formula 2	.215	3	.	.989	3	.798
	Formula 3	.364	3	.	.800	3	.114
	Formula 4	.225	3	.	.984	3	.756

a. Lilliefors Significance Correction

Descriptives

Susut_pengeringan

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 0	3	1.8433	.14572	.08413	1.4814	2.2053	1.68	1.96
Formula 1	3	1.8333	.06807	.03930	1.6642	2.0024	1.78	1.91
Formula 2	3	1.7800	.24637	.14224	1.1680	2.3920	1.55	2.04
Formula 3	3	1.8933	.08386	.04842	1.6850	2.1017	1.84	1.99
Formula 4	3	2.0467	.09074	.05239	1.8213	2.2721	1.95	2.13
Total	15	1.8793	.15309	.03953	1.7946	1.9641	1.55	2.13

Test of Homogeneity of Variances

Susut_pengeringan

Levene Statistic	df1	df2	Sig.
1.674	4	10	.232

ANOVA

Susut_pengeringan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.124	4	.031	1.527	.267
Within Groups	.204	10	.020		

Total	.328	14			

Multiple Comparisons

Dependent Variable: Susut_pengeringan

Games-Howell

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 0	Formula 1	.01000	.09286	1.000	-.5040	.5240
	Formula 2	.06333	.16526	.993	-.7669	.8936
	Formula 3	-.05000	.09707	.980	-.5430	.4430
	Formula 4	-.20333	.09911	.400	-.6914	.2847
Formula 1	Formula 0	-.01000	.09286	1.000	-.5240	.5040
	Formula 2	.05333	.14757	.994	-.9241	1.0308
	Formula 3	-.06000	.06236	.860	-.3434	.2234
	Formula 4	-.21333	.06549	.139	-.5166	.0900
Formula 2	Formula 0	-.06333	.16526	.993	-.8936	.7669
	Formula 1	-.05333	.14757	.994	-1.0308	.9241
	Formula 3	-.11333	.15026	.927	-1.0499	.8233
	Formula 4	-.26667	.15158	.530	-1.1865	.6531
Formula 3	Formula 0	.05000	.09707	.980	-.4430	.5430
	Formula 1	.06000	.06236	.860	-.2234	.3434
	Formula 2	.11333	.15026	.927	-.8233	1.0499
	Formula 4	-.15333	.07134	.350	-.4715	.1648
Formula 4	Formula 0	.20333	.09911	.400	-.2847	.6914
	Formula 1	.21333	.06549	.139	-.0900	.5166
	Formula 2	.26667	.15158	.530	-.6531	1.1865
	Formula 3	.15333	.07134	.350	-.1648	.4715

Test Statistics[a,b]

	Susut_pengeringan
Chi-Square	5.333
df	4
Asymp. Sig.	.255

a. Kruskal Wallis Test

b. Grouping Variable: Formula

- **Evaluasi Laju Alir Setelah Penyalutan**

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Laju_alir	Formula 0	.292	3	.	.923	3	.463
	Formula 1	.300	3	.	.913	3	.428
	Formula 2	.219	3	.	.987	3	.780
	Formula 3	.375	3	.	.774	3	.054
	Formula 4	.225	3	.	.984	3	.756

a. Lilliefors Significance Correction

Descriptives

Laju_alir

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 0	3	7.6967	.02082	.01202	7.6450	7.7484	7.68	7.72
Formula 1	3	8.1133	.22502	.12991	7.5544	8.6723	7.86	8.29
Formula 2	3	7.6033	.02517	.01453	7.5408	7.6658	7.58	7.63
Formula 3	3	7.8833	.17616	.10171	7.4457	8.3209	7.68	7.99
Formula 4	3	7.5167	.18148	.10477	7.0659	7.9675	7.35	7.71
Total	15	7.7627	.25561	.06600	7.6211	7.9042	7.35	8.29

Test of Homogeneity of Variances

Laju_alir

Levene Statistic	df1	df2	Sig.
3.932	4	10	.036

ANOVA

Laju_alir

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.683	4	.171	7.385	.005
Within Groups	.231	10	.023		

Total	.915	14			

Multiple Comparisons

Dependent Variable: Laju_alir

Bonferroni

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 0	Formula 1	-.41667	.12419	.073	-.8614	.0281
	Formula 2	.09333	.12419	1.000	-.3514	.5381
	Formula 3	-.18667	.12419	1.000	-.6314	.2581
	Formula 4	.18000	.12419	1.000	-.2648	.6248
Formula 1	Formula 0	.41667	.12419	.073	-.0281	.8614
	Formula 2	.51000*	.12419	.021	.0652	.9548
	Formula 3	.23000	.12419	.937	-.2148	.6748
	Formula 4	.59667*	.12419	.007	.1519	1.0414
Formula 2	Formula 0	-.09333	.12419	1.000	-.5381	.3514
	Formula 1	-.51000*	.12419	.021	-.9548	-.0652
	Formula 3	-.28000	.12419	.478	-.7248	.1648
	Formula 4	.08667	.12419	1.000	-.3581	.5314
Formula 3	Formula 0	.18667	.12419	1.000	-.2581	.6314
	Formula 1	-.23000	.12419	.937	-.6748	.2148
	Formula 2	.28000	.12419	.478	-.1648	.7248
	Formula 4	.36667	.12419	.145	-.0781	.8114
Formula 4	Formula 0	-.18000	.12419	1.000	-.6248	.2648
	Formula 1	-.59667*	.12419	.007	-1.0414	-.1519
	Formula 2	-.08667	.12419	1.000	-.5314	.3581
	Formula 3	-.36667	.12419	.145	-.8114	.0781

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

Test Statistics[a,b]

	Laju_alir
Chi-Square	10.026
df	4
Asymp. Sig.	.040

a. Kruskal Wallis Test

b. Grouping Variable: Formula

- **Evaluasi Sudut Diam Setelah Penyalutan**

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Sudut_diam	Formula 0	.193	3	.	.997	3	.891
	Formula 1	.306	3	.	.905	3	.401
	Formula 2	.281	3	.	.937	3	.514
	Formula 3	.347	3	.	.835	3	.201
	Formula 4	.323	3	.	.878	3	.320

a. Lilliefors Significance Correction

Descriptives

Sudut_diam

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 0	3	26.4900	.45574	.26312	25.3579	27.6221	26.02	26.93
Formula 1	3	28.2433	.55194	.31866	26.8722	29.6144	27.62	28.67
Formula 2	3	27.2333	.47014	.27144	26.0654	28.4012	26.71	27.62
Formula 3	3	25.5567	.47606	.27485	24.3741	26.7393	25.01	25.88
Formula 4	3	26.9167	.24007	.13860	26.3203	27.5130	26.74	27.19
Total	15	26.8880	.98919	.25541	26.3402	27.4358	25.01	28.67

Test of Homogeneity of Variances

Sudut_diam

Levene Statistic	df1	df2	Sig.
.644	4	10	.644

ANOVA

Sudut_diam

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.664	4	2.916	14.327	.000
Within Groups	2.035	10	.204		
Total	13.699	14			

Multiple Comparisons

Dependent Variable: Sudut_diam

Bonferroni

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 0	Formula 1	-1.75333*	.36835	.008	-3.0726	-.4341
	Formula 2	-.74333	.36835	.712	-2.0626	.5759
	Formula 3	.93333	.36835	.297	-.3859	2.2526
	Formula 4	-.42667	.36835	1.000	-1.7459	.8926
Formula 1	Formula 0	1.75333*	.36835	.008	.4341	3.0726
	Formula 2	1.01000	.36835	.208	-.3092	2.3292
	Formula 3	2.68667*	.36835	.000	1.3674	4.0059
	Formula 4	1.32667*	.36835	.048	.0074	2.6459
Formula 2	Formula 0	.74333	.36835	.712	-.5759	2.0626
	Formula 1	-1.01000	.36835	.208	-2.3292	.3092
	Formula 3	1.67667*	.36835	.011	.3574	2.9959
	Formula 4	.31667	.36835	1.000	-1.0026	1.6359
Formula 3	Formula 0	-.93333	.36835	.297	-2.2526	.3859
	Formula 1	-2.68667*	.36835	.000	-4.0059	-1.3674
	Formula 2	-1.67667*	.36835	.011	-2.9959	-.3574
	Formula 4	-1.36000*	.36835	.042	-2.6792	-.0408
Formula 4	Formula 0	.42667	.36835	1.000	-.8926	1.7459
	Formula 1	-1.32667*	.36835	.048	-2.6459	-.0074
	Formula 2	-.31667	.36835	1.000	-1.6359	1.0026
	Formula 3	1.36000*	.36835	.042	.0408	2.6792

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

- **Evaluasi Waktu Larut Setelah Penyalutan**

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Waktu_larut	Formula 0	.196	3	.	.996	3	.878
	Formula 1	.253	3	.	.964	3	.637
	Formula 2	.314	3	.	.893	3	.363
	Formula 3	.276	3	.	.942	3	.537
	Formula 4	.196	3	.	.996	3	.878

a. Lilliefors Significance Correction

Descriptives

Waktu_larut

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 0	3	2.1867	.04509	.02603	2.0747	2.2987	2.14	2.23
Formula 1	3	1.5233	.03055	.01764	1.4474	1.5992	1.49	1.55
Formula 2	3	1.4700	.05292	.03055	1.3386	1.6014	1.41	1.51
Formula 3	3	1.3000	.03606	.02082	1.2104	1.3896	1.27	1.34
Formula 4	3	2.5467	.04509	.02603	2.4347	2.6587	2.50	2.59
Total	15	1.8053	.49607	.12808	1.5306	2.0800	1.27	2.59

Test of Homogeneity of Variances

Waktu_larut

Levene Statistic	df1	df2	Sig.
.328	4	10	.853

ANOVA

Waktu_larut

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.427	4	.857	470.738	.000
Within Groups	.018	10	.002		
Total	3.445	14			

Multiple Comparisons

Dependent Variable: Waktu_larut

Bonferroni

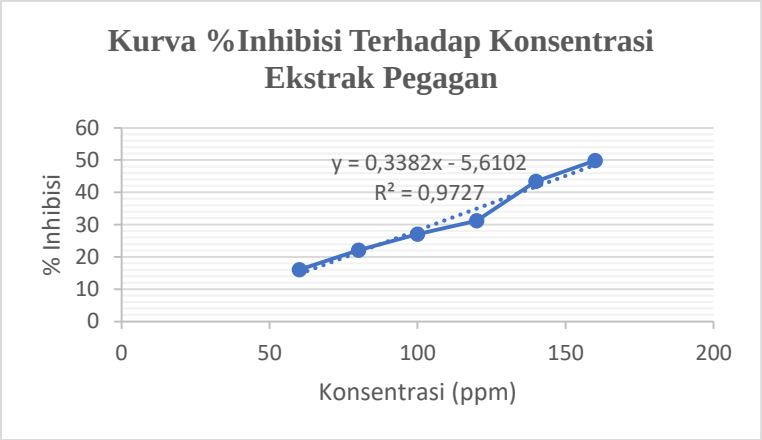
(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 0	Formula 1	.66333*	.03483	.000	.5386	.7881
	Formula 2	.71667*	.03483	.000	.5919	.8414
	Formula 3	.88667*	.03483	.000	.7619	1.0114
	Formula 4	-.36000*	.03483	.000	-.4848	-.2352
Formula 1	Formula 0	-.66333*	.03483	.000	-.7881	-.5386
	Formula 2	.05333	.03483	1.000	-.0714	.1781
	Formula 3	.22333*	.03483	.001	.0986	.3481
	Formula 4	-1.02333*	.03483	.000	-1.1481	-.8986
Formula 2	Formula 0	-.71667*	.03483	.000	-.8414	-.5919
	Formula 1	-.05333	.03483	1.000	-.1781	.0714
	Formula 3	.17000*	.03483	.006	.0452	.2948
	Formula 4	-1.07667*	.03483	.000	-1.2014	-.9519
Formula 3	Formula 0	-.88667*	.03483	.000	-1.0114	-.7619
	Formula 1	-.22333*	.03483	.001	-.3481	-.0986
	Formula 2	-.17000*	.03483	.006	-.2948	-.0452
	Formula 4	-1.24667*	.03483	.000	-1.3714	-1.1219
Formula 4	Formula 0	.36000*	.03483	.000	.2352	.4848
	Formula 1	1.02333*	.03483	.000	.8986	1.1481
	Formula 2	1.07667*	.03483	.000	.9519	1.2014
	Formula 3	1.24667*	.03483	.000	1.1219	1.3714

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

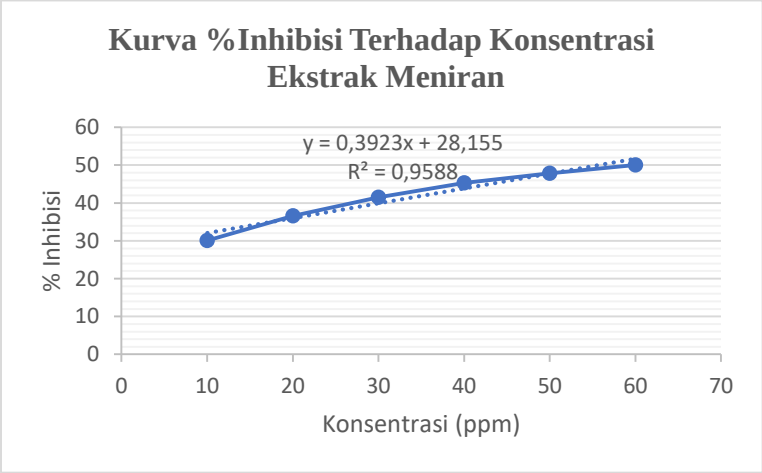
Lampiran 8 Hasil Pengujian Antioksidan

- **Aktivitas Antioksidan pada Ekstrak**

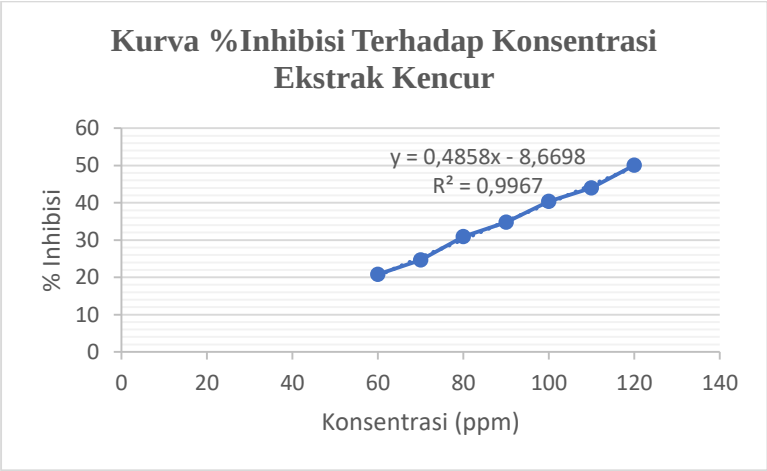
EKSTRAK PEGAGAN												
Konsentrasi (ppm)	**Abs Kontrol**	**Abs Sampel**			**%Inhibisi**			**x̄ %Inhibisi**	**y**	**a**	**b**	**x**
		1	**2**	**3**	**1**	**2**	**3**					
60	0.421	0.355	0.356	0.349	15.67696	15.43943	17.10214	16.07284244	50	-5.6102	0.3382	164.4299
80	0.421	0.325	0.33	0.329	22.80285	21.6152	21.85273	22.09026128				
100	0.421	0.306	0.306	0.31	27.31591	27.31591	26.3658	26.99920823				
120	0.421	0.289	0.29	0.29	31.35392	31.11639	31.11639	31.19556611				
140	0.421	0.238	0.238	0.239	43.46793	43.46793	43.2304	43.38875693				
160	0.421	0.212	0.212	0.21	49.64371	49.64371	50.11876	49.80205859				



EKSTRAK MENIRAN												
Konsentrasi (ppm)	**Abs Kontrol**	**Abs Sampel**			**%Inhibisi**			**x̄ %Inhibisi**	**y**	**a**	**b**	**x**
		1	**2**	**3**	**1**	**2**	**3**					
10	0.421	0.293	0.296	0.294	30.4038	29.69121	30.16627	30.08709422	50	28.155	0.3923	55.68443
20	0.421	0.267	0.268	0.266	36.57957	36.34204	36.8171	36.57957245				
30	0.421	0.246	0.247	0.246	41.5677	41.33017	41.5677	41.4885194				
40	0.421	0.23	0.231	0.23	45.36817	45.13064	45.36817	45.28899446				
50	0.421	0.219	0.221	0.219	47.981	47.50594	47.981	47.8226445				
60	0.421	0.209	0.211	0.211	50.35629	49.88124	49.88124	50.03958828				



EKSTRAK KENCUR												
Konsentrasi (ppm)	Abs Kontrol	Abs Sampel			%Inhibisi			x̄ %Inhibisi	y	a	b	x
		1	2	3	1	2	3					
60	0.421	0.338	0.332	0.331	19.71496	21.14014	21.37767	20.7442597	50	-8.6698	0.4858	120.7695
70	0.421	0.319	0.318	0.315	24.22803	24.46556	25.17815	24.62391132				
80	0.421	0.292	0.291	0.29	30.64133	30.87886	31.11639	30.87885986				
90	0.421	0.276	0.275	0.273	34.44181	34.67933	35.15439	34.75851148				
100	0.421	0.252	0.251	0.25	40.14252	40.38005	40.61758	40.38004751				
110	0.421	0.235	0.239	0.234	44.18052	43.2304	44.41805	43.94299287				
120	0.421	0.212	0.21	0.209	49.64371	50.11876	50.35629	50.03958828				



- **Replikasi Uji Antioksidan pada Ekstrak**

Sampel	REPLIKASI 1					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
Ekstrak Pegagan	60	15.6769596	50	-5.3546	0.337	164.257
	80	22.8028504				
	100	27.3159145				
	120	31.3539192				
	140	43.4679335				
	160	49.6437055				
	REPLIKASI 2					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	60	15.4394299	50	-6.3409	0.3434	164.0679
	80	21.6152019				
	100	27.3159145				
	120	31.1163895				
	140	43.4679335				
	160	49.6437055				
	REPLIKASI 3					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	60	17.1021378	50	-5.1352	0.3342	164.9767
	80	21.8527316				
	100	26.3657957				
	120	31.1163895				
	140	43.2304038				
	160	50.1187648				

Sampel	REPLIKASI 1					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
Ekstrak Meniran	10	30.4038005	50	28.266	0.3936	55.2185
	20	36.5795724				
	30	41.567696				
	40	45.368171				
	50	47.9809976				
	60	50.3562945				
	REPLIKASI 2					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	10	29.6912114	50	27.823	0.395	56.1443
	20	36.3420428				
	30	41.3301663				
	40	45.1306413				
	50	47.5059382				
	60	49.8812352				
	REPLIKASI 3					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	10	30.1662708	50	28.377	0.3882	55.70067
	20	36.8171021				
	30	41.567696				
	40	45.368171				
	50	47.9809976				
	60	49.8812352				

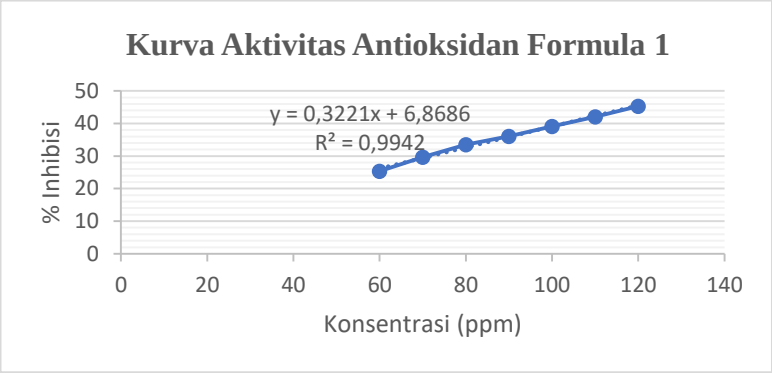
Sampel	REPLIKASI 1					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
Ekstrak Kencur	60	19.71496437	50	-10.027	0.4971	120.7544
	70	24.2280285				
	80	30.64133017				
	90	34.44180523				
	100	40.14251781				
	110	44.18052257				
	120	49.64370546				
	REPLIKASI 2					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	60	21.14014252	50	-8.076	0.4785	121.371
	70	24.46555819				
	80	30.87885986				
	90	34.67933492				
	100	40.38004751				
	110	43.2304038				
	120	50.11876485				
	REPLIKASI 3					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	60	21.37767221	50	-7.9063	0.4818	120.1874
	70	25.17814727				
	80	31.11638955				
	90	35.1543943				
	100	40.6175772				
	110	44.41805226				
	120	50.35629454				

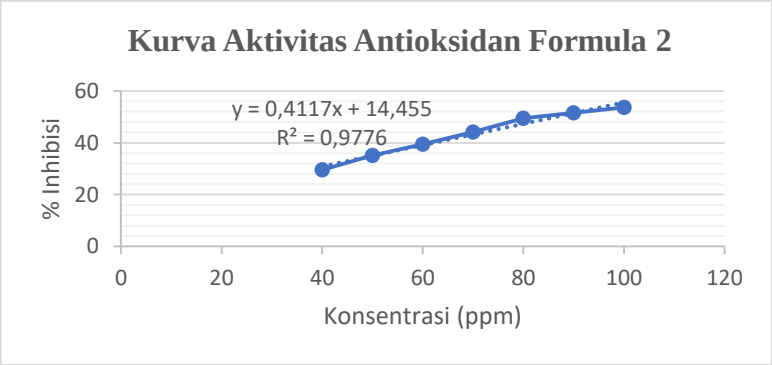
- **Aktivitas Antioksidan pada Formula Mikrokapsul**

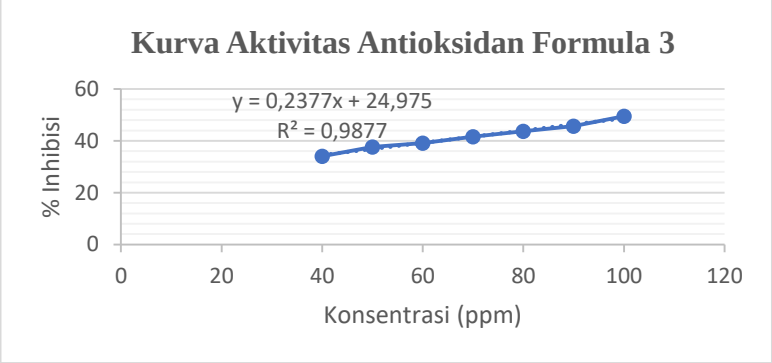
FORMULA 1												
Konsentrasi (ppm)	**Abs Kontrol**	**Abs Sampel**			**%Inhibisi**			**x̄ %Inhibisi**	**y**	**a**	**b**	**x**
		1	**2**	**3**	**1**	**2**	**3**					
60	0.421	0.314	0.311	0.318	25.41568	26.12827	24.46556	25.3365004	50	6.8686	0.3221	133.9069
70	0.421	0.297	0.295	0.296	29.45368	29.92874	29.69121	29.6912114				
80	0.421	0.281	0.279	0.28	33.25416	33.72922	33.49169	33.49168646				
90	0.421	0.271	0.269	0.268	35.62945	36.10451	36.34204	36.0253365				
100	0.421	0.258	0.257	0.254	38.71734	38.95487	39.66746	39.11322249				
110	0.421	0.244	0.245	0.243	42.04276	41.80523	42.28029	42.04275534				
120	0.421	0.231	0.229	0.231	45.13064	45.6057	45.13064	45.28899446				
FORMULA 2												
Konsentrasi (ppm)	**Abs Kontrol**	**Abs Sampel**			**%Inhibisi**			**x̄ %Inhibisi**	**y**	**a**	**b**	**x**
		1	**2**	**3**	**1**	**2**	**3**					
40	0.421	0.298	0.297	0.295	29.21615	29.45368	29.92874	29.53285827	50	14.455	0.4117	86.33714
50	0.421	0.274	0.272	0.273	34.91686	35.39192	35.15439	35.1543943				
60	0.421	0.255	0.254	0.256	39.42993	39.66746	39.1924	39.42992874				
70	0.421	0.237	0.234	0.235	43.70546	44.41805	44.18052	44.101346				
80	0.421	0.215	0.211	0.212	48.93112	49.88124	49.64371	49.48535234				
90	0.421	0.209	0.202	0.201	50.35629	52.019	52.25653	51.54394299				
100	0.421	0.196	0.194	0.195	53.44418	53.91924	53.68171	53.68171021				

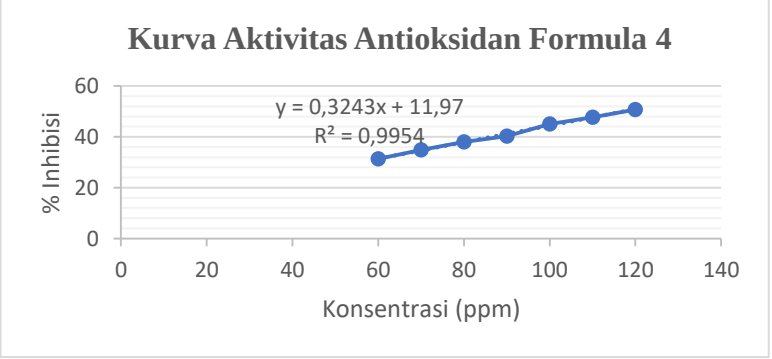
FORMULA 3												
Konsentrasi (ppm)	Abs Kontrol	Abs Sampel			%Inhibisi			x̄ %Inhibisi	y	a	b	x
		1	2	3	1	2	3					
40	0.421	0.278	0.2773	0.27664	33.96675	34.13302	34.28979	34.12984956	50	24.975	0.2377	105.2798
50	0.421	0.26346	0.26073	0.26326	37.42043	38.06888	37.46793	37.65241489				
60	0.421	0.2547	0.2563	0.25731	39.50119	39.12114	38.88124	39.16785432				
70	0.421	0.24501	0.24353	0.24968	41.80285	42.15439	40.69359	41.55027712				
80	0.421	0.2368	0.23683	0.23744	43.75297	43.74584	43.60095	43.69992082				
90	0.421	0.22881	0.22868	0.22929	45.65083	45.68171	45.53682	45.62311956				
100	0.421	0.21413	0.2126	0.21115	49.13777	49.50119	49.84561	49.49485352				
FORMULA 4												
Konsentrasi (ppm)	Abs Kontrol	Abs Sampel			%Inhibisi			x̄ %Inhibisi	y	a	b	x
		1	2	3	1	2	3					
60	0.421	0.29	0.289	0.288	31.11639	31.35392	31.59145	31.35391924	50	11.97	0.3243	117.268
70	0.421	0.276	0.272	0.274	34.44181	35.39192	34.91686	34.91686461				
80	0.421	0.262	0.26	0.261	37.76722	38.24228	38.00475	38.00475059				
90	0.421	0.252	0.253	0.249	40.14252	39.90499	40.85511	40.30087094				
100	0.421	0.234	0.229	0.23	44.41805	45.6057	45.36817	45.13064133				
110	0.421	0.222	0.219	0.22	47.26841	47.981	47.74347	47.66429137				
120	0.421	0.208	0.209	0.205	50.59382	50.35629	51.30641	50.75217736				

- **Gambar Kurva Aktivitas Antioksidan pada Formula Mikrokapsul**









- Replikasi Antioksidan pada Formula Mikrokapsul

Sampel	REPLIKASI 1					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
Formula 1	60	25.41567696	50	6.8035	0.3207	134.6944
	70	29.45368171				
	80	33.25415677				
	90	35.62945368				
	100	38.71733967				
	110	42.04275534				
	120	45.13064133				
	REPLIKASI 2					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	60	26.12826603	50	7.9403	0.3122	134.7204
	70	29.92874109				
	80	33.72921615				
	90	36.10451306				
	100	38.95486936				
	110	41.80522565				
	120	45.60570071				
	REPLIKASI 3					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	60	24.46555819	50	5.8619	0.3334	132.3878
	70	29.6912114				
	80	33.49168646				
	90	36.34204276				
	100	39.66745843				
	110	42.28028504				
	120	45.13064133				

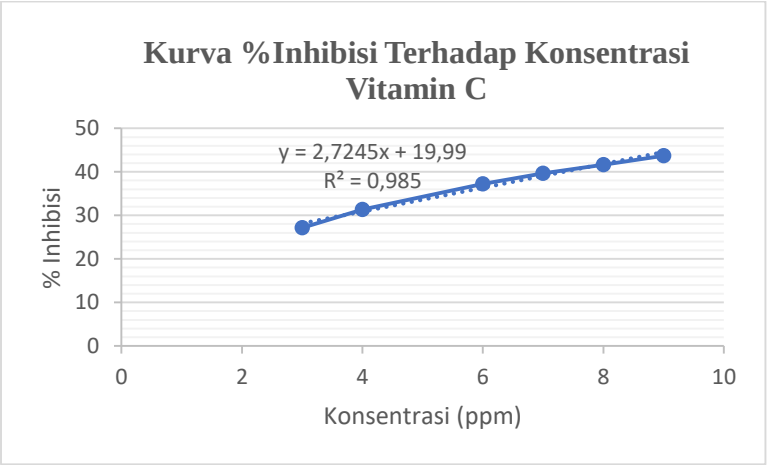
Sampel	REPLIKASI 1					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
Formula 2	40	29.21615202	50	14.501	0.4038	87.91233
	50	34.91686461				
	60	39.42992874				
	70	43.70546318				
	80	48.93111639				
	90	50.35629454				
	100	53.44418052				
	REPLIKASI 2					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	40	29.45368171	50	14.32	0.4174	85.48155
	50	35.39192399				
	60	39.66745843				
	70	44.41805226				
	80	49.88123515				
	90	52.01900238				
	100	53.9192399				
	REPLIKASI 3					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	40	29.92874109	50	14.455	0.414	85.85749
	50	35.1543943				
	60	39.19239905				
	70	44.18052257				
	80	49.64370546				
	90	52.25653207				
	100	53.68171021				

Sampel	REPLIKASI 1					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
Formula 3	40	33.96674584	50	25.048	0.2365	105.5053
	50	37.42042755				
	60	39.50118765				
	70	41.80285036				
	80	43.75296912				
	90	45.65083135				
	100	49.13776722				
	REPLIKASI 2					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	40	34.13301663	50	25.284	0.2356	104.9066
	50	38.06888361				
	60	39.12114014				
	70	42.1543943				
	80	43.74584323				
	90	45.68171021				
	100	49.50118765				
	REPLIKASI 3					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	40	34.28978622	50	24.592	0.2412	105.34
	50	37.46793349				
	60	38.88123515				
	70	40.6935867				
	80	43.60095012				
	90	45.5368171				
	100	49.8456057				

Sampel	REPLIKASI 1					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
Formula 4	60	31.11638955	50	11.656	0.3241	118.3092
	70	34.44180523				
	80	37.7672209				
	90	40.14251781				
	100	44.41805226				
	110	47.26840855				
	120	50.59382423				
	REPLIKASI 2					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	60	31.35391924	50	12.479	0.3198	117.3265
	70	35.39192399				
	80	38.24228029				
	90	39.90498812				
	100	45.60570071				
	110	47.98099762				
	120	50.35629454				
	REPLIKASI 3					
	Konsentrasi (ppm)	**%Inhibisi**	**y**	**a**	**b**	**x**
	60	31.59144893	50	11.775	0.3291	116.1501
	70	34.91686461				
	80	38.00475059				
	90	40.85510689				
	100	45.36817102				
	110	47.74346793				
	120	51.3064133				

- **Aktivitas Antioksidan pada Vitamin C**

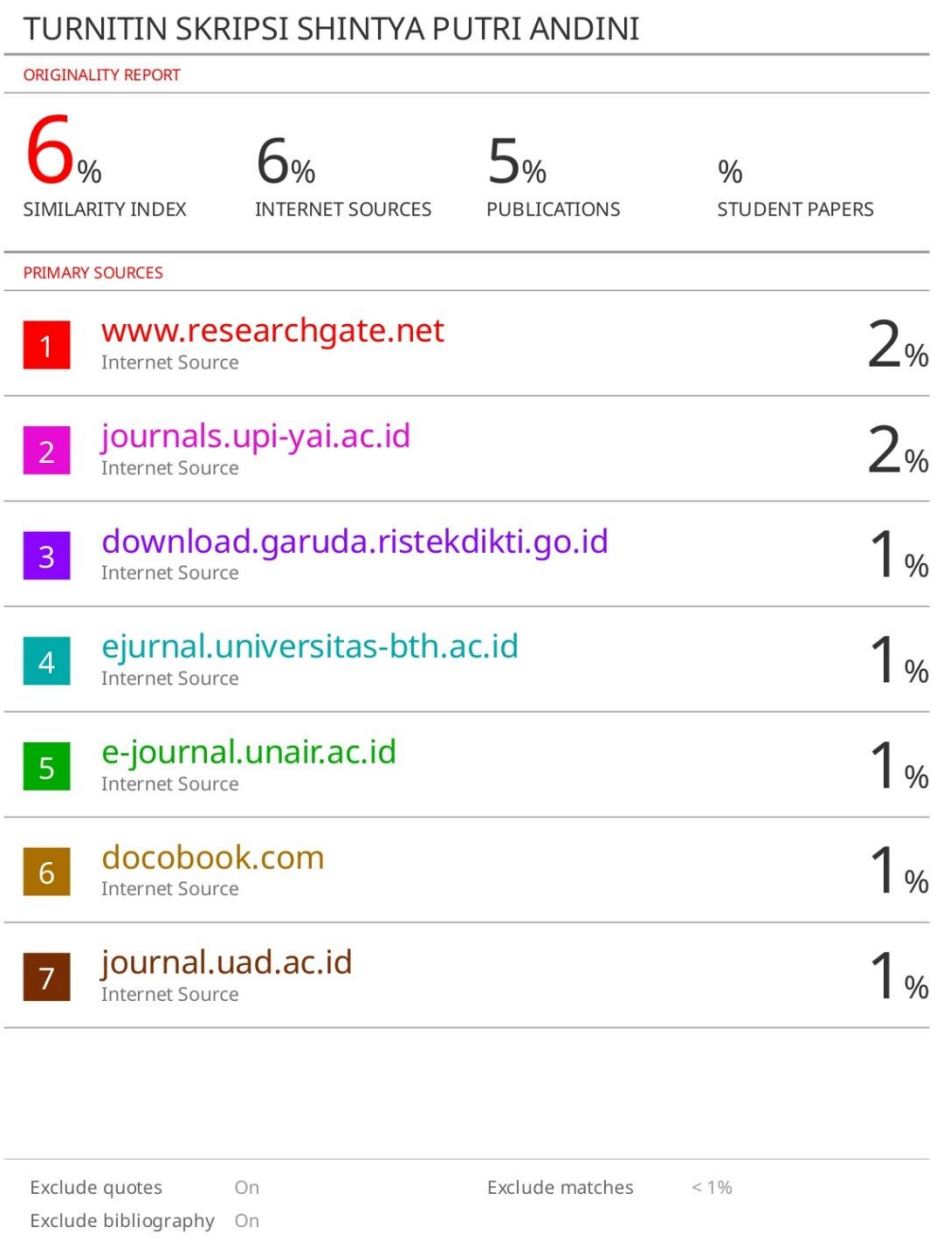
VITAMIN C												
Konsentrasi (ppm)	**Abs Kontrol**	**Abs Sampel**			**% Inhibisi**			**x̄ %Inhibisi**	**y**	**a**	**b**	**x**
		1	**2**	**3**	**1**	**2**	**3**					
3	0.421	0.309	0.306	0.305	26.60333	27.3159	27.5534	27.1575614	50	19.99	2.7245	11.01487
4	0.421	0.29	0.288	0.289	31.11639	31.5914	31.3539	31.3539192				
6	0.421	0.266	0.264	0.263	36.8171	37.2922	37.5297	37.212985				
7	0.421	0.255	0.253	0.254	39.42993	39.905	39.6675	39.6674584				
8	0.421	0.247	0.247	0.243	41.33017	41.3302	42.2803	41.6468725				
9	0.421	0.239	0.237	0.235	43.2304	43.7055	44.1805	43.7054632				



- Replikasi Antioksidan pada Vitamin C

SAMPEL	REPLIKASI 1					
	Konsentrasi (ppm)	**% inhibisi**	**y**	**a**	**b**	**x**
	3	26.6033	50	19.572	2.7323	11.13641
	4	31.1164				
	6	36.8171				
	7	39.4299				
	8	41.3302				
	9	43.2304				
	REPLIKASI 2					
	Konsentrasi (ppm)	**% inhibisi**	**y**	**a**	**b**	**x**
VITAMIN C	3	27.3159	50	20.38	2.6718	11.08616
	4	31.5914				
	6	37.2922				
	7	39.9050				
	8	41.3302				
	9	43.7055				
	REPLIKASI 3					
	Konsentrasi (ppm)	**% inhibisi**	**y**	**a**	**b**	**x**
	3	27.5534	50	20.017	2.7692	10.82731
	4	31.3539				
	6	37.5297				
	7	39.6675				
	8	42.2803				
	9	44.1805				

Lampiran 9 Hasil Turnitin



TURNITIN SKRIPSI SHINTYA PUTRI ANDINI

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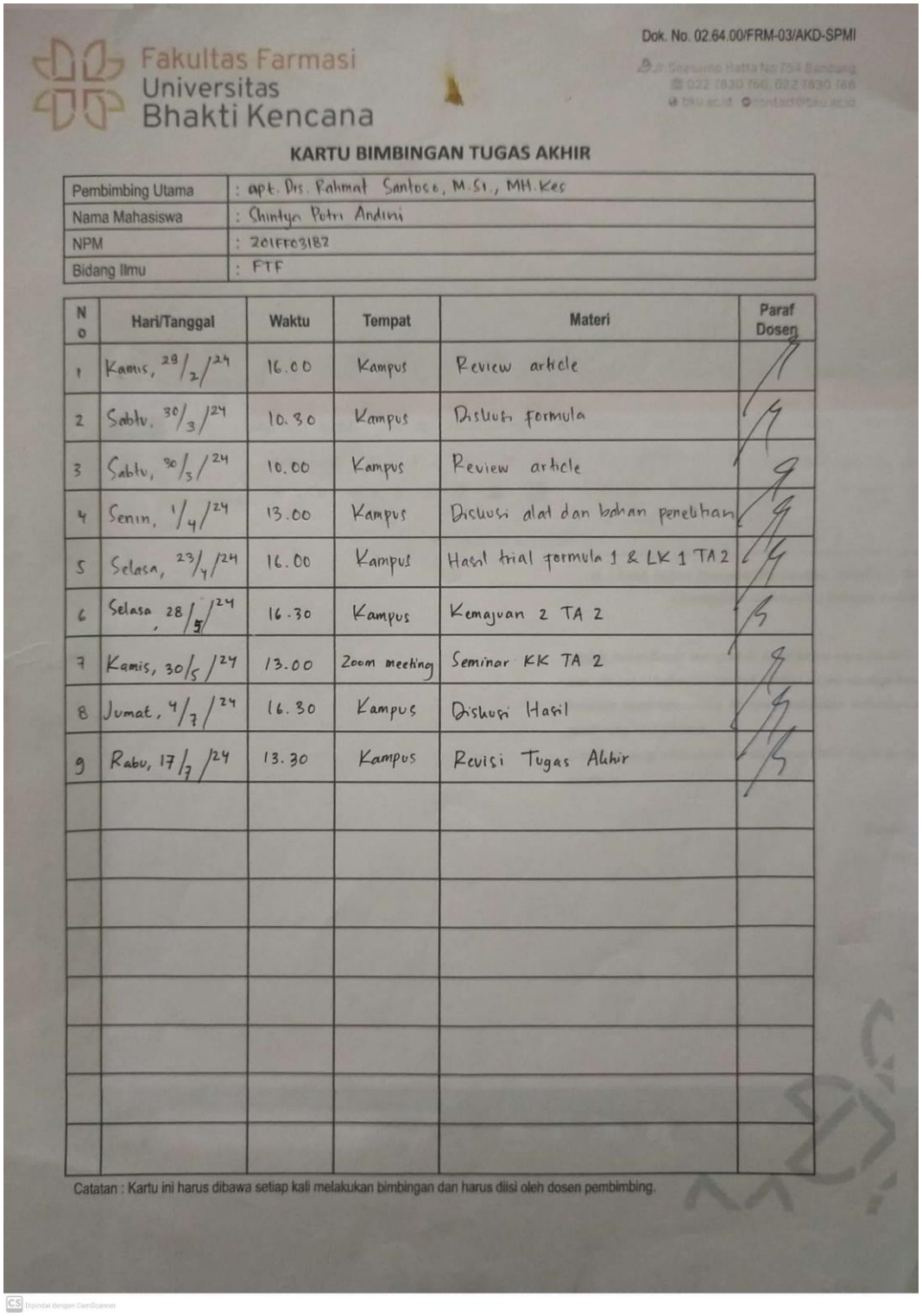
Lampiran 10 Lembar Bimbingan



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

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KARTU BIMBINGAN TUGAS AKHIR

Pembimbing Utama	: apt. Dis. Rahmat Santoso, M.Si., MH.Kes
Nama Mahasiswa	: Shintya Putri Andini
NPM	: 201FF03182
Bidang Ilmu	: FTF

No	Hari/Tanggal	Waktu	Tempat	Materi	Paraf Dosen
1	Kamis, 29/2/24	16.00	Kampus	Review article	
2	Sabtu, 30/3/24	10.30	Kampus	Diskusi formula	
3	Sabtu, 30/3/24	10.00	Kampus	Review article	
4	Senin, 1/4/24	13.00	Kampus	Diskusi alat dan bahan penelitian	
5	Selasa, 23/4/24	16.00	Kampus	Hasil trial formula 1 & LK 1 TA 2	
6	Selasa, 28/5/24	16.30	Kampus	Kemajuan 2 TA 2	
7	Kamis, 30/5/24	13.00	Zoom meeting	Seminar KK TA 2	
8	Jumat, 4/7/24	16.30	Kampus	Diskusi Hasil	
9	Rabu, 17/7/24	13.30	Kampus	Revisi Tugas Akhir	

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

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

KARTU BIMBINGAN TUGAS AKHIR II

Pembimbing Serta	: apt. Deny Puriyani Azhary, M.Si.
Nama Mahasiswa	: Shintya Putri Andini
NPM	: 201FF03182
Bidang Ilmu	: Farmasetika dan Teknologi Farmasi (FTF)

No	Hari/Tanggal	Waktu	Tempat	Materi	Paraf Dosen
1	Sabtu, 27-04-2024	06.35	Via Wa	Elastrak dan CoA	
2	Kamis, 2-05-2024	06.48	Via Wa	Formula penggunaan PVP	
3	Senin, 13-05-2024	08.32	Via Wa	Reformulasi dan evaluasi	
4	Kamis, 16-05-2024	07.06	Via Wa	Evaluasi formula baru	
5	Rabu, 29-05-2024	10.56	Via Wa	Uji freeze and thaw	
6	Selasa, 25-06-2024	18.50	Via Wa	Evaluasi sediaan	
7	Kamis, 27-06-2024	09.24	Via Wa	Pengujian antioksidan formula	
8	Jumat, 05-07-2024	10.04	Via Wa	Pengujian antioksidan sediaan	
9					

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

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Lampiran 11 *Curriculum Vitae*

SHINTYA PUTRI ANDINI

KONTAK

896-9405-5239

Kab. Ketapang, Kalimantan Barat

shintyaputri.spa@gmail.com

TENTANG SAYA

Saya seorang mahasiswi Program Studi Sarjana Farmasi yang mandiri, disiplin, dan bertanggung jawab dalam memenuhi kewajiban yang berkaitan dengan akademik dan kolaborasi antar profesi

PENDIDIKAN

2020 - 2024
Universitas Bhakti Kencana
Sarjana Farmasi

2017 - 2020
SMA Negeri 3 Ketapang
Jurusan IPA

KEAHLIAN

Microsoft word

Microsoft excel

Powerpoint

Komunikasi yang baik

Mampu bekerja dalam tim

BAHASA

Indonesia

Inggris

PENGALAMAN

2024

- Mengikuti kegiatan Pengabdian Kepada Masyarakat Interprofessional Education (IPE) 2024

2022

- Peserta Kuliah Tamu Prodi Sarjana Farmasi dengan judul "Perkembangan Ilmu Forensik di dunia Farmasi"
- Sekretaris Kuliah Kerja Nyata (KKN) 2022 Kelompok 29 Prodi Farmasi

2021

- Peserta dalam acara Program Kreativitas Mahasiswa Gelar Karya 2021
- Peserta dalam kegiatan seminar Pharmaceutic and Pharmaceutical Care 2021
- Peserta dalam acara Personal Branding 2021

2020

- Mengikuti Latihan Kepemimpinan Managerial Mahasiswa Farmasi
- Mengikuti acara seminar LK 1 ISMAFARSI 2020