LAMPIRAN

Lampiran 1. Bukti Determinasi Buah Mentimun

INSTITUT TEKNOLOGI BANDUNG

SEKOLAH ILMU DAN TEKNOLOGI HAYATI

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Nomor   : 2578/IT1.C11.2/TA.00/2025   14 April 2025
Hal   : Determinasi tumbuhan

Yth. Dekan
Fakultas Farmasi
Universitas Bhakti Kencana
Jalan Soekarno Hatta No. 754
Bandung

Memperhatikan permintaan Saudara dalam surat No. 0952/03.S1-FF/UBK/XII/2024 tanggal 16 Desember 2024 mengenai determinasi tumbuhan, dengan ini kami sampaikan bahwa setelah dilakukan pendeterminasian oleh staf kami, sampel tumbuhan yang dikirim oleh Sdr. Afifah Isybillah Ahmad (NIM: 231FF04035), yaitu:

No	Nama sampel	Hasil determinasi	Famili
1	Timun	*Cucumis sativus* L.	Cucurbitaceae

Referensi:
1. de Wilde, W. J. J. O., & Duyfjes, B. (2010). Cucurbitaceae. *Flora Malesiana - Series 1, Spermatophyta*, 19(1), 1–333.

Demikian yang kami sampaikan. Atas perhatian dan kerjasama yang diberikan, kami ucapkan terima kasih.
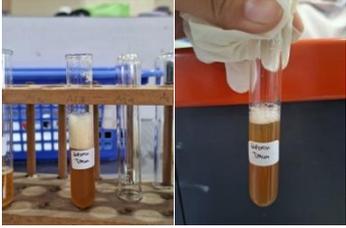
Wakil Dekan Bidang Sumber Daya,

Angga Dwiartama, S.Si., M.Si., Ph.D.
NIP. 198302052012121002

Tembusan:
1. Dekan SITH ITB

Lampiran 2. Hasil uji fitokimia ekstrak mentimun

Kandungan	Hasil	Literatur
Alkaloid - Mayer: + (endapan putih) - Dragendroff: + (endapan jingga) - Bauchardat: + (endapan coklat)		(Agustin & Gunawan, 2019)
Flavonoid	 + Merah	
Tanin	 ++ Hijau gelap	
Saponin	 +++ Busa	
Steroid/Triterpenoid	 + Ungu kemerahan	

Lampiran 3. CoA (*Certificate of Analysis*)

Kitosan Udang

Result Of Analysis
pharma

Source : SHRIMPSHELL extract

Batch : chs_0424

Production Date : April, 2024

Qty : 1Kg

Exp Date : April, 2027

Parameter	Result
Colour / Appearance	White
Particle Size	powder
Moisture Regaint	9.88%
Residue Of Ignition	0.89%
Degree Of Deacetylation	98.03%
Viscosity	198.21mPas
Molecular Weight	75.02KDa
Proteint Content	< 0.2 %
Heavy Metals	< 3ppm
Micro Organism	Negative

Indramayu, June 03rd, 2024

Kitosan Udang
Phy Edumedia

QC & QA

PVP K30

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

Product Name	Povidone K30		Batch No.	PK30-220919F31	Date of Mfg	20220919
Quantity	6000KG		Packaging	25KG/ Fibre Drum	Expiry Date	20260918
Source	PVP Workshop		Reference		USP41	

No.	Items	Specification	Test Results
1.	Appearance	White or yellowish-white, hygroscopic powder	Complies
2.	Solubility	Freely soluble in water, ethanol 96%, methanol, very slightly soluble in acetone	Complies
3.	Identifications A、B、C、D、E	Positive	Complies
4.	Appearance of solution	Clear and NMT B_6, BY_6, or R_6	Complies
5.	pH	3.0-5.0	3.4
6.	K-value	27.0-32.4	29.6
7.	Aldehydes, ppm	≤ 500	21.1
8.	Peroxides, ppm	≤ 400	189
9.	Formic acid, %	≤ 0.5	0.3
10.	Hydrazine, ppm	≤ 1	<1
11.	Impurity A(1-vinylpyrrolidin-2-one), ppm	≤ 10	0.22
12.	Impurity B (2-pyrrolidone), %	≤ 3.0	1.1
13.	Heavy metals, ppm	≤ 10	<10
14.	Lead, ppm	≤ 10	<10
15.	Water, %	≤ 5.0	2.9
16.	Sulphated ash, %	≤ 0.1	0.08
17.	Nitrogen content, %	11.5 - 12.8	12.0
18.	* Total Aerobic Plate count, CFU/g	≤100	<10
19.	* Total Mold/Yeast count, CFU/g	≤100	<10
20.	* E.coli , CFU/g	Not detected	Complies
21.	* Staphylococcus Aureus , CFU /g	Not detected	Complies
22.	* Pseudomonas Aeruginosa , CFU /g	Not detected	Complies
23.	* Salmonella, CFU /g	Not detected	Complies

Note: The above tests with * are performed randomly.

Conclusion: Material meets the requirement for Povidone in USP41.

Completed by:Lan Qiao	Signature: Lan Qiao	Date: 30/9/2022
QC Manager: Tong Mengxin	Signature: Tong Mengxin	Date: 30/9/2022
Released by QA Manager: Zhang Ming	Signature: Zhang Ming	Date: 30/9/2022

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

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

SSG

| Sodium Starch Glycolate (Normal Residual Solvent Grade)-EP/BP ||
Tests	Acceptance Criteria
Appearance	A white or almost white, fine, free-flowing powder, very hygroscopic
Solubility	Practically insoluble in methylene chloride. A translucent suspension in water

Identification
   A. pH
 	
   B. Suspension test
 	
   C. Iodine test
   D. Sodium test
	
	 5.5 ~ 7.5
	 A suspension forms that settles after standing
	 The solution becomes blue or violet
	 Dense white precipitate formed

Appearance of solution
   Clear
 	
   Colorless
	
	 The opalescence is not more pronounced than reference suspension I
	 Not more intensely colored than reference solution B_9

Assay	2.8 % ~ 4.2 % of sodium
Sodium chloride	$\leq 7.0\%$
Sodium glycolate	$\leq 2.0\%$
Loss on drying	$\leq 10.0\%$
Iron	≤ 20 ppm
Settling volume	< 45 mL
Degree of substitution	For reference
Microbial contamination	Absence of *Salmonella* species and *Escherichia coli*
Particle size d(90%)	 ≤ 82 µm

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")

Lampiran 4. Dokumentasi penelitian

Penyiapan Bahan

Pencampuran Bahan

Pembuatan masa kepal

Pembuatan esktrudat

Pembuatan sferoid

Pengeringan sediaan

Uji LoD

Uji Laju Alir

Uji Sudut istirahat

Uji waktu melarut

Uji distribusi partikel

Uji dengan PSA

Lampiran 5. Hasil uji evaluasi fisik

1. Uji LOD

Formulasi	Pengulangan Ke- (%)			Rata-Rata	Sd
	1	2	3		
F1	2,16	2,12	2,14	2,14	0,02
F2	2,35	2,32	2,38	2,35	0,03
F3	2,21	2,25	2,26	2,24	0,026458
F4	2,45	2,47	2,49	2,47	0,02
F5	2,38	2,4	2,36	2,38	0,02

2. Uji laju alir

Formulasi	Pengulangan ke- (gr/ detik)			Rata-Rata	Sd
	1	2	3		
F1	6,9	6,92	6,91	6,91	0,01
F2	6,99	7	6,98	6,99	0,01
F3	8,65	8,63	8,6	8,626666667	0,025166
F4	7,8	7,82	7,78	7,8	0,02
F5	7,31	7,32	7,34	7,32	0,015275

3. Sudut istirahat

Formulasi	Pengulangan ke- (°)			Rata-rata	Sd
	1	2	3		
F1	30	29,6	29,9	29,83	0,208167
F2	30,76	30,65	30,46	30,62	0,151767
F3	28,51	29,6	28,92	29,01	0,550545
F4	32,96	32,57	32,27	32,6	0,345977
F5	31,93	31,18	31,86	31,66	0,414287

4. Waktu melarut

Formulasi	Pengulangan ke- (menit)			Rata-rata	Sd
	1	2	3		
F1	4,35	4,31	4,33	4,33	0,02
F2	4,2	4,15	4,17	4,17	0,025166115
F3	3,5	3,55	3,4	3,48	0,076376262
F4	4,5	4,45	4,48	4,48	0,025166115
F5	4,47	4,45	4,48	4,47	0,015275252

Lampiran 6. Hasil Uji Statistik Evaluasi Fisik Mikropartikel

1. Uji LOD

Tests of Normality

	formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
lod	f1	.175	3	.	1.000	3	1.000
	f2	.175	3	.	1.000	3	1.000
	f3	.314	3	.	.893	3	.363
	f4	.175	3	.	1.000	3	1.000
	f5	.175	3	.	1.000	3	1.000

a. Lilliefors Significance Correction

lod

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
f1	3	2.1400	.02000	.01155	2.0903	2.1897	2.12	2.16
f2	3	2.3500	.03000	.01732	2.2755	2.4245	2.32	2.38
f3	3	2.2400	.02646	.01528	2.1743	2.3057	2.21	2.26
f4	3	2.4700	.02000	.01155	2.4203	2.5197	2.45	2.49
f5	3	2.3800	.02000	.01155	2.3303	2.4297	2.36	2.40
Total	15	2.3160	.12034	.03107	2.2494	2.3826	2.12	2.49

Test of Homogeneity of Variances

lod

Levene Statistic	df1	df2	Sig.
.250	4	10	.903

ANOVA

lod

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.197	4	.049	88.018	.000
Within Groups	.006	10	.001		
Total	.203	14			

2. Uji Laju Alir

Tests of Normality

	formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
lajualir	f1	.175	3	.	1.000	3	1.000
	f2	.175	3	.	1.000	3	1.000
	f3	.219	3	.	.987	3	.780
	f4	.175	3	.	1.000	3	1.000
	f5	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

Descriptives

lajualir

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
f1	3	6.9100	.01000	.00577	6.8852	6.9348	6.90	6.92
f2	3	6.9900	.01000	.00577	6.9652	7.0148	6.98	7.00
f3	3	8.6267	.02517	.01453	8.5642	8.6892	8.60	8.65
f4	3	7.8000	.02000	.01155	7.7503	7.8497	7.78	7.82
f5	3	7.3233	.01528	.00882	7.2854	7.3613	7.31	7.34
Total	15	7.5300	.65388	.16883	7.1679	7.8921	6.90	8.65

Test of Homogeneity of Variances

lajualir

Levene Statistic	df1	df2	Sig.
.818	4	10	.542

ANOVA

lajualir

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.983	4	1.496	5099.034	.000
Within Groups	.003	10	.000		
Total	5.986	14			

3. Uji Sudut Diam

Tests of Normality

	formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
sudutdiam	f1	.292	3	.	.923	3	.463
	f2	.236	3	.	.977	3	.708
	f3	.232	3	.	.980	3	.729
	f4	.201	3	.	.994	3	.856
	f5	.355	3	.	.819	3	.162

a. Lilliefors Significance Correction

Descriptives

sudutdiam

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
f1	3	29.8333	.20817	.12019	29.3162	30.3504	29.60	30.00
f2	3	30.6233	.15177	.08762	30.2463	31.0003	30.46	30.76
f3	3	29.0100	.55055	.31786	27.6424	30.3776	28.51	29.60
f4	3	32.6000	.34598	.19975	31.7405	33.4595	32.27	32.96
f5	3	31.6567	.41429	.23919	30.6275	32.6858	31.18	31.93
Total	15	30.7447	1.35506	.34987	29.9943	31.4951	28.51	32.96

Test of Homogeneity of Variances

sudutdiam

Levene Statistic	df1	df2	Sig.
1.476	4	10	.281

ANOVA

sudutdiam

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24.385	4	6.096	46.128	.000
Within Groups	1.322	10	.132		
Total	25.707	14			

4. Uji Waktu Melarut

Tests of Normality

	formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
melarut	f1	.175	3	.	1.000	3	1.000
	f2	.219	3	.	.987	3	.780
	f3	.253	3	.	.964	3	.637
	f4	.219	3	.	.987	3	.780
	f5	.184	3	.	.999	3	.927

a. Lilliefors Significance Correction

Descriptives

melarut

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
f1	3	4.3300	.02000	.01155	4.2803	4.3797	4.31	4.35
f2	3	4.1733	.02517	.01453	4.1108	4.2358	4.15	4.20
f3	3	3.4833	.07638	.04410	3.2936	3.6731	3.40	3.55
f4	3	4.4767	.02517	.01453	4.4142	4.5392	4.45	4.50
f5	3	4.4733	.07506	.04333	4.2869	4.6598	4.40	4.55
Total	15	4.1873	.38464	.09931	3.9743	4.4003	3.40	4.55

Test of Homogeneity of Variances

melarut

Levene Statistic	df1	df2	Sig.
1.857	4	10	.195

ANOVA

melarut

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.045	4	.511	194.641	.000
Within Groups	.026	10	.003		
Total	2.071	14			

Lampiran 7. Hasil Uji PSA Mikropartikel

Formula 1 (AF1T)

Result	
Concentration	0,29%
Span	0,67
Uniformity	0,205
Specific Surface Area	2,993 m²/kg
D [3;2]	2000 µm
D [4;3]	2140 µm
Dx (10)	1460 µm
Dx (50)	2110 µm
Dx (90)	2880 µm

—[63] AF1T-09/05/2025 11:46:36   —[64] AF1T-09/05/2025 11:51:27   —[65] AF1T-09/05/2025 11:55:09
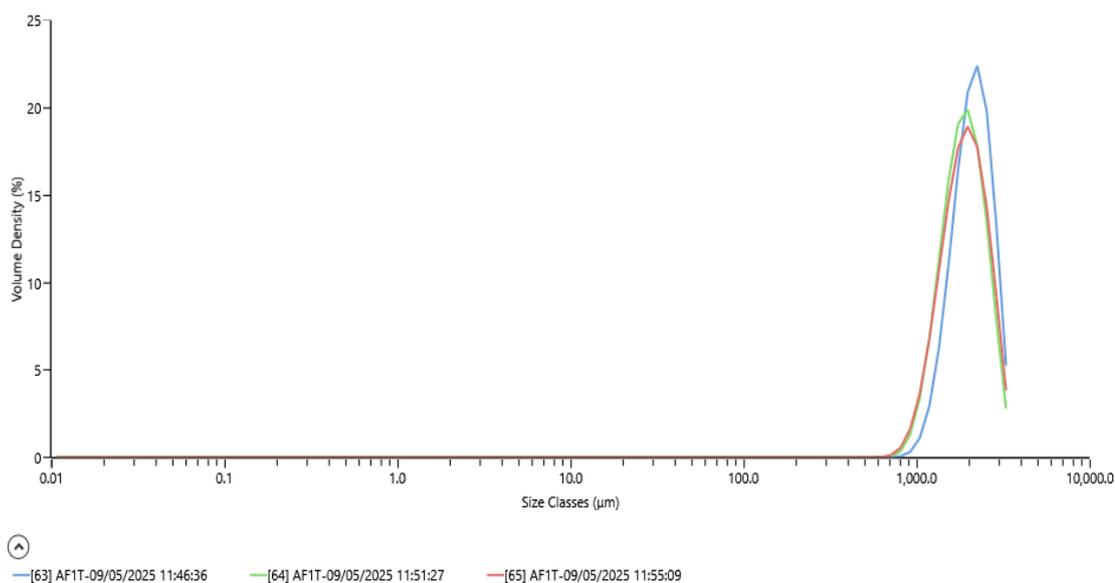
F1	Number	Sample Name	Dx (10) (µm)	Dx (50) (µm)	Dx (90) (µm)
	63	AF1T	1460	2110	2880
	64	AF1T	1270	1870	2670
	65	AF1T	1250	1900	2740
	66	Average of 'AF1T'	1310	1960	2770
Mean			1320	1960	2770
1xStd Dev			96,3	107	87,4
1RSD (%)			7,29	5,47	3,16

Formula 2 (AF2T)

Result	
Concentration	0,26%
Span	0,928
Uniformity	0,284
Specific Surface Area	3,907 m²/kg
D [3;2]	1540 µm
D [4;3]	1720 µm
Dx (10)	1030 µm
Dx (50)	1630 µm
Dx (90)	2550 µm

—[67] AF2T-09/05/2025 12:20:13   —[68] AF2T-09/05/2025 12:22:27   —[69] AF2T-09/05/2025 12:25:02
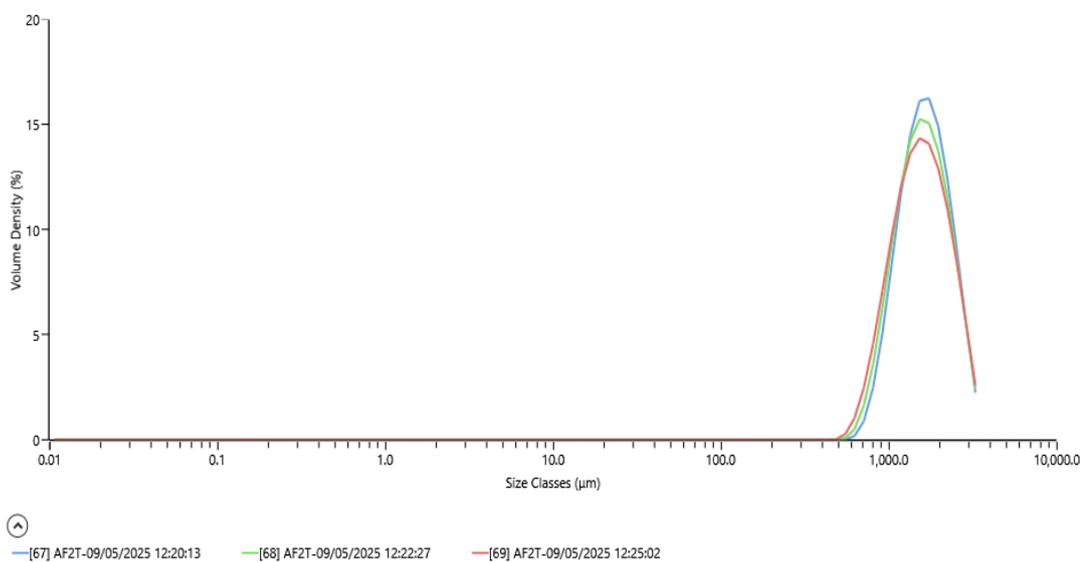
F2	Number	Sample Name	Dx (10) (µm)	Dx (50) (µm)	Dx (90) (µm)
	67	AF2T	1030	1630	2550
	68	AF2T	979	1590	2550
	69	AF2T	921	1550	2560
	70	Average of 'AF2T'	979	1590	2550
Mean			978	1590	2550
1xStd Dev			45,4	33,2	4,3
1RSD (%)			4,64	2,08	0,169

Formula 3 (AF3T) grafik bertumpuk nyaris sama persis pada pengulangan 1,2 dan 3

Result	
Concentration	0,30%
Span	0,821
Uniformity	0,249
Specific Surface Area	3,706 m²/kg
D [3;2]	1620 µm
D [4;3]	1770 µm
Dx (10)	1140 µm
Dx (50)	1700 µm
Dx (90)	2530 µm
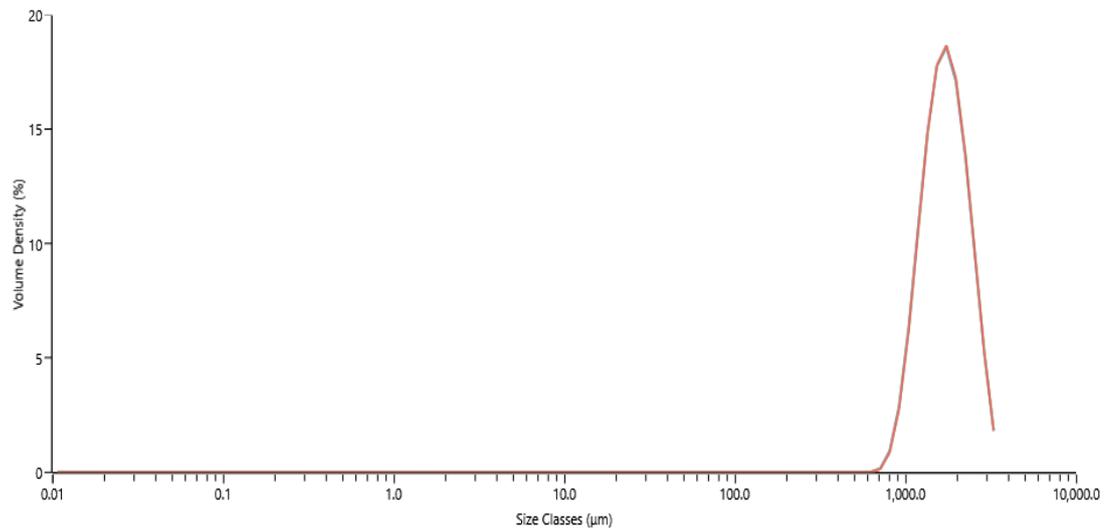
—[71] AF3T-09/05/2025 12:28:24   —[72] AF3T-09/05/2025 12:36:06   —[73] AF3T-09/05/2025 12:38:15

F3	Number	Sample Name	Dx (10) (µm)	Dx (50) (µm)	Dx (90) (µm)
	71	AF3T	1140	1700	2530
	72	AF3T	1140	1710	2540
	73	AF3T	1140	1700	2530
	74	Average of 'AF3T'	1140	1700	2530
Mean			1140	1700	2530
1xStd Dev			2,75	3,27	2,64
1RSD (%)			0,241	0,192	0,104

Formula 4 (AF4T)

Result	
Concentration	0,17%
Span	0,727
Uniformity	0,224
Specific Surface Area	3,410 m²/kg
D [3;2]	1760 µm
D [4;3]	1890 µm
Dx (10)	1270 µm
Dx (50)	1840 µm
Dx (90)	2610 µm

—[75] AF4T-09/05/2025 12:42:00   —[76] AF4T-09/05/2025 12:44:53   —[77] AF4T-09/05/2025 12:47:48
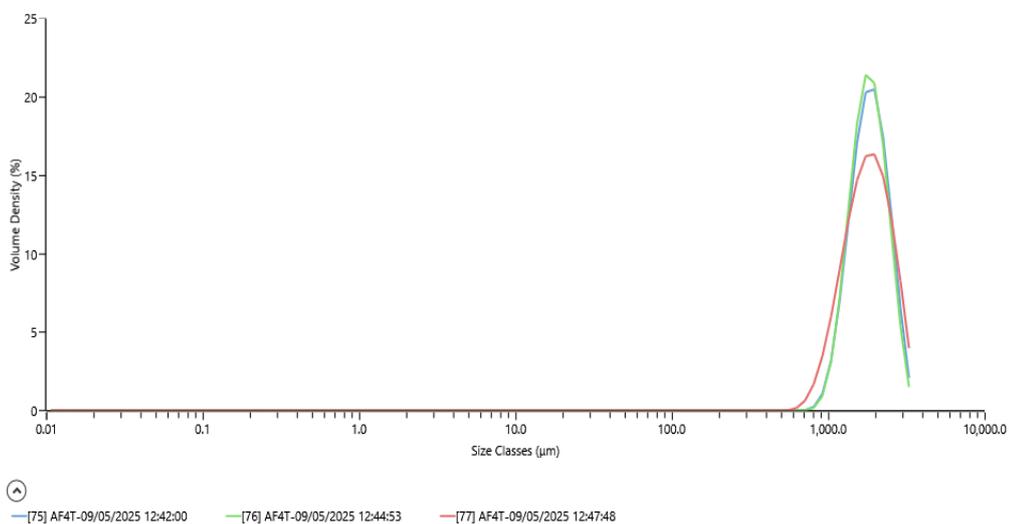
F4	Number	Sample Name	Dx (10) (µm)	Dx (50) (µm)	Dx (90) (µm)
	75	AF4T	1270	1840	2610
	76	AF4T	1270	1810	2550
	77	AF4T	1110	1790	2720
	78	Average of 'AF4T'	1210	1810	2630
Mean			1220	1810	2630
1xStd Dev			74,8	19,3	73
1RSD (%)			6,14	1,07	2,78

Formula 5 (AF5T)

Result	
Concentration	0,15%
Span	0,764
Uniformity	0,237
Specific Surface Area	3,399 m²/kg
D [3;2]	1770 µm
D [4;3]	1920 µm
Dx (10)	1250 µm
Dx (50)	1860 µm
Dx (90)	2670 µm
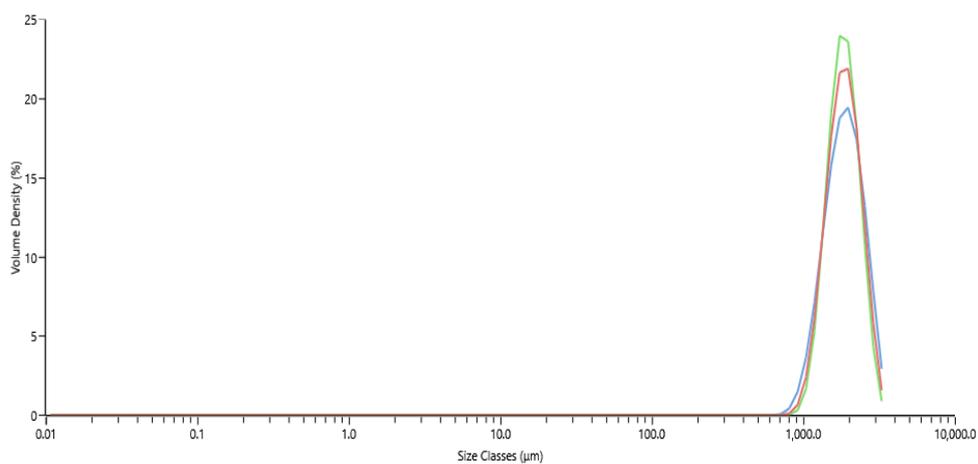
—[79] AF5T-09/05/2025 12:52:00   —[80] AF5T-09/05/2025 12:54:36   —[81] AF5T-09/05/2025 12:57:26

F5	Number	Sample Name	Dx (10) (µm)	Dx (50) (µm)	Dx (90) (µm)
	79	AF5T	1250	1860	2670
	80	AF5T	1340	1830	2480
	81	AF5T	1300	1850	2570
	82	Average of 'AF5T'	1300	1840	2580
Mean			1300	1850	2580
1xStd Dev			34,6	14,4	77,7
1RSD (%)			2,67	0,78	3,02

Grafik puncak dari rata-rata tiap formula (1, 2, 3, 4, dan 5)
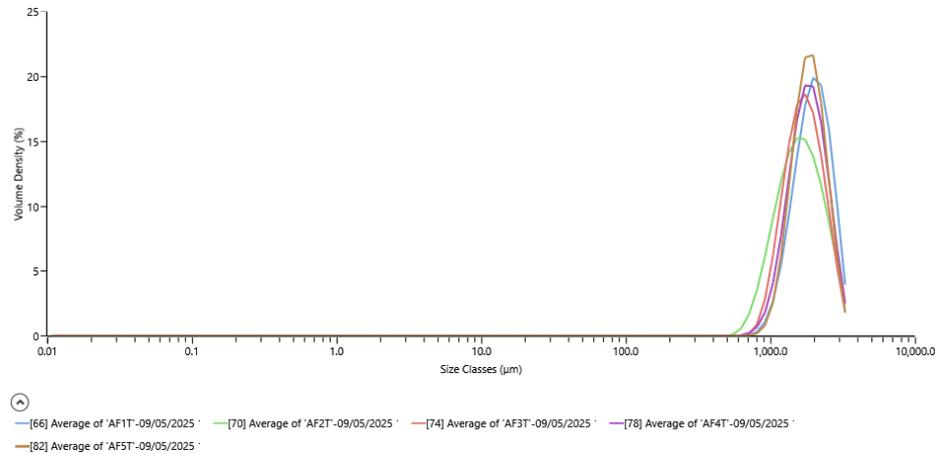
[66] Average of 'AF1T'-09/05/2025   [70] Average of 'AF2T'-09/05/2025   [74] Average of 'AF3T'-09/05/2025   [78] Average of 'AF4T'-09/05/2025
[82] Average of 'AF5T'-09/05/2025

	Number	Sample Name	Dx (10) (µm)	Dx (50) (µm)	Dx (90) (µm)
	63	AF1T	1460	2110	2880
	64	AF1T	1270	1870	2670
	65	AF1T	1250	1900	2740
	66	Average of 'AF1T'	1310	1960	2770
	67	AF2T	1030	1630	2550
	68	AF2T	979	1590	2550
	69	AF2T	921	1550	2560
	70	Average of 'AF2T'	979	1590	2550
	71	AF3T	1140	1700	2530
	72	AF3T	1140	1710	2540
	73	AF3T	1140	1700	2530
	74	Average of 'AF3T'	1140	1700	2530
	75	AF4T	1270	1840	2610
	76	AF4T	1270	1810	2550
	77	AF4T	1110	1790	2720
	78	Average of 'AF4T'	1210	1810	2630
	79	AF5T	1250	1860	2670
	80	AF5T	1340	1830	2480
	81	AF5T	1300	1850	2570
	82	Average of 'AF5T'	1300	1840	2580
Mean			1190	1780	2610
1xStd Dev			138	138	102
1RSD (%)			11,6	7,73	3,91

Lampiran 8. Uji aktivitas antioksidan

1. Vitamin C
   Λ=516 nm
   Absorban kontrol= 0,814

Konsentrasi (µg/mL)	Abs. Kontrol	Abs. vit C			% Inhibisi			IC50				
		1	2	3	1	2	3	1	2	3	Rata-rata	SD
1	0,814	0,728	0,732	0,732	10,565	10,074	10,074					
2	0,814	0,708	0,709	0,71	13,022	12,899	12,776					
3	0,814	0,633	0,623	0,614	22,236	23,464	24,570	6,315	6,288	6,272	6,292	0,021
4	0,814	0,502	0,503	0,497	38,329	38,206	38,943					
5	0,814	0,481	0,482	0,481	40,909	40,786	40,909					
6	0,814	0,427	0,427	0,428	47,543	47,543	47,420					

replikasi 1

$y = 7,941x - 0,1443$
$R^2 = 0,9828$

replikasi 2

$y = 7,9795x - 0,1771$
$R^2 = 0,9867$

replikasi 3

$y = 7,9567x + 0,0971$
$R^2 = 0,9854$
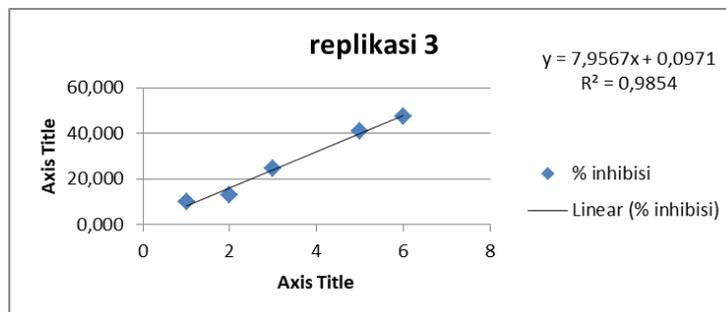
2. Ekstrak mentimun
   Λ=516 nm
   Absorban kontrol= 0,660

Konsentrasi (µg/mL)	Abs. Kontrol	Abs. ekstrak mentimun			% Inhibisi			IC50				
		1	2	3	1	2	3	1	2	3	rata-rata	SD
50	0,66	0,371	0,371	0,371	43,788	43,788	43,788					
60	0,66	0,354	0,355	0,355	46,364	46,212	46,212					
70	0,66	0,321	0,324	0,327	51,364	50,909	50,455	70,286	70,800	70,977	70,688	0,359115
80	0,66	0,311	0,312	0,311	52,879	52,727	52,879					
90	0,66	0,296	0,296	0,296	55,152	55,152	55,152					
100	0,66	0,272	0,273	0,273	58,788	58,636	58,636					

replikasi 1

$y = 0{,}2939x + 29{,}343$
$R^2 = 0{,}9809$

replikasi 2

$y = 0{,}2939x + 29{,}192$
$R^2 = 0{,}9873$

replikasi 3

$y = 0{,}2957x + 29{,}012$
$R^2 = 0{,}9927$
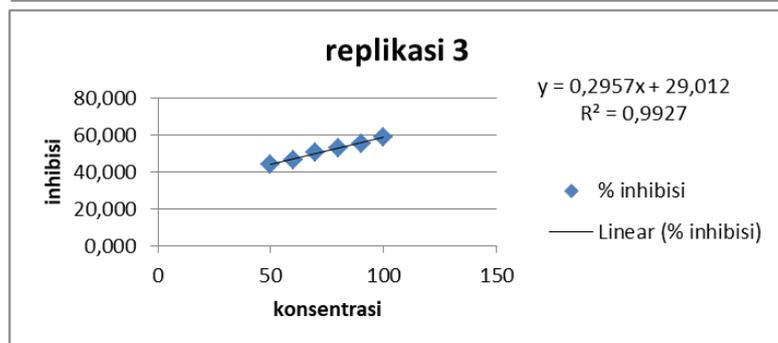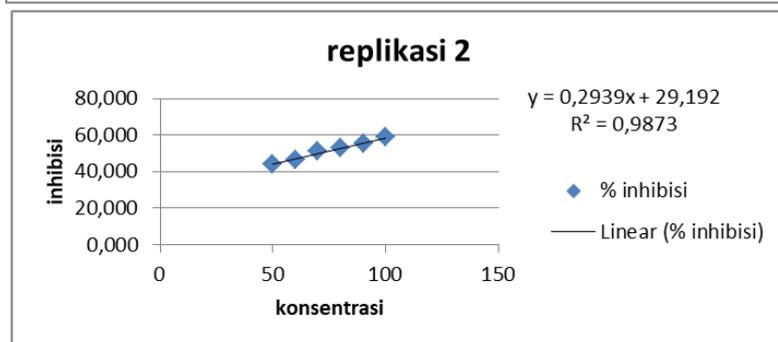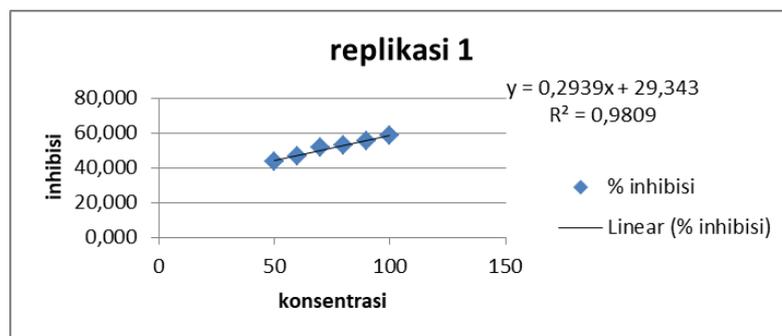
3. Formula 1 Mikropartikel
   Λ=516 nm
   Absorban kontrol= 0,660

Konsentrasi (µg/mL)	Abs. Kontrol	Abs. formula 1			% Inhibisi			IC50				
		1	2	3	1	2	3	1	2	3	Rata-rata	SD
50	0,66	0,406	0,405	0,405	38,485	38,636	38,636					
60	0,66	0,38	0,379	0,38	42,424	42,576	42,424					
70	0,66	0,355	0,354	0,354	46,212	46,364	46,364	77,103	76,687	76,686	76,825	0,240
80	0,66	0,315	0,314	0,313	52,273	52,424	52,576					
90	0,66	0,293	0,291	0,291	55,606	55,909	55,909					
100	0,66	0,267	0,266	0,266	59,545	59,697	59,697					

replikasi 1

$y = 0,4312x + 16,753$
$R^2 = 0,9946$

replikasi 2

$y = 0,4325x + 16,833$
$R^2 = 0,9946$

replikasi 3

$y = 0,4342x + 16,703$
$R^2 = 0,9934$
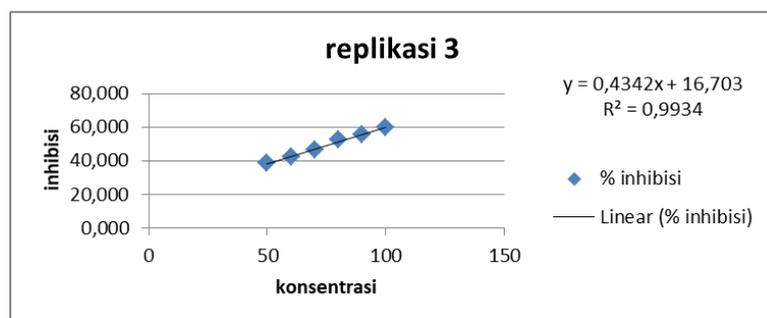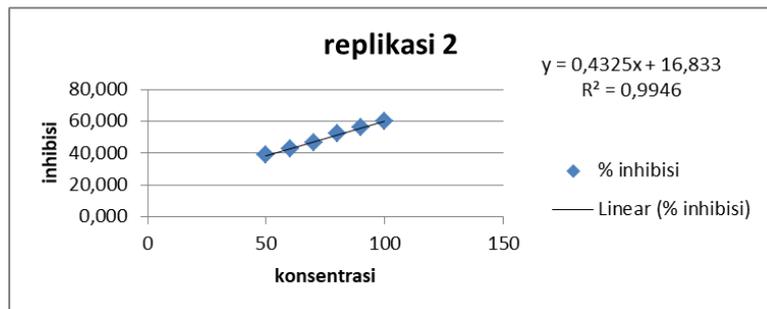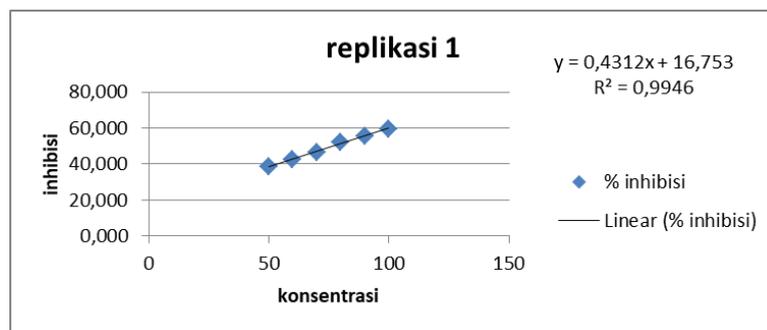
4. Formula 2 Mikropartikel
   Λ=516 nm
   Absorban kontrol= 0,660

Konsentrasi (µg/mL)	Abs. Kontrol	Abs. formula 2			% Inhibisi			IC50				
		1	2	3	1	2	3	1	2	3	rata-rata	SD
50	0,66	0,39	0,389	0,388	40,909	41,061	41,212					
60	0,66	0,369	0,369	0,368	44,091	44,091	44,242					
70	0,66	0,353	0,353	0,352	46,515	46,515	46,667	77,741	78,048	77,727	77,839	0,180
80	0,66	0,317	0,319	0,319	51,970	51,667	51,667					
90	0,66	0,304	0,304	0,305	53,939	53,939	53,788					
100	0,66	0,283	0,285	0,283	57,121	56,818	57,121					

replikasi 1

$y = 0{,}3316x + 24{,}221$
$R^2 = 0{,}9875$

replikasi 2

$y = 0{,}3242x + 24{,}697$
$R^2 = 0{,}9895$

replikasi 3

$y = 0{,}3234x + 24{,}863$
$R^2 = 0{,}9911$
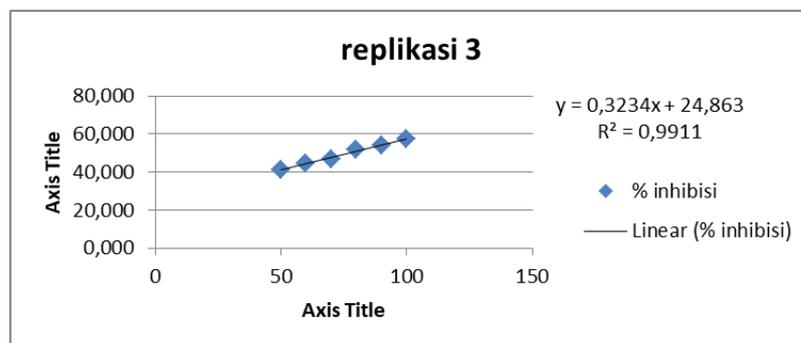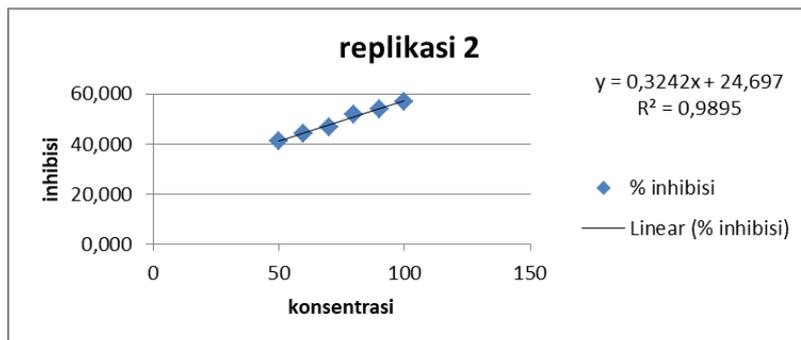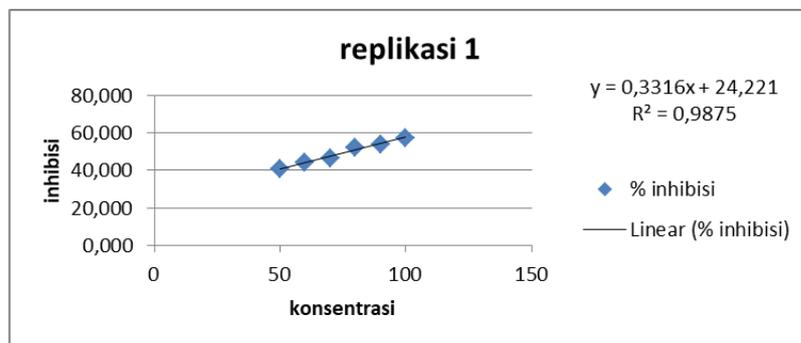
5. Formula 3 Mikropartikel
   Λ=516 nm
   Absorban kontrol= 0,660

Konsentrasi (μg/mL)	Abs. Kontrol	Abs. formula 3			% Inhibisi			IC50				
		1	2	3	1	2	3	1	2	3	rata-rata	SD
50	0,66	0,404	0,402	0,403	38,788	39,091	38,939	75,646	75,207	75,101	75,318	0,289
60	0,66	0,385	0,388	0,386	41,667	41,212	41,515					
70	0,66	0,351	0,354	0,352	46,818	46,364	46,667					
80	0,66	0,313	0,31	0,308	52,576	53,030	53,333					
90	0,66	0,287	0,283	0,283	56,515	57,121	57,121					
100	0,66	0,252	0,247	0,25	61,818	62,576	62,121					

replikasi 1

$y = 0,4727x + 14,242$
$R^2 = 0,9939$

replikasi 2

$y = 0,4909x + 13,081$
$R^2 = 0,9867$

replikasi 3

$y = 0,484x + 13,651$
$R^2 = 0,9897$
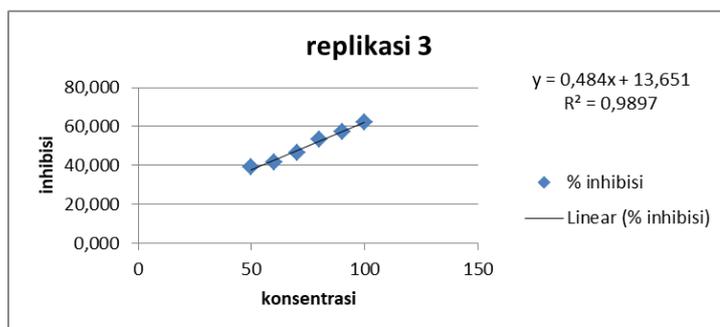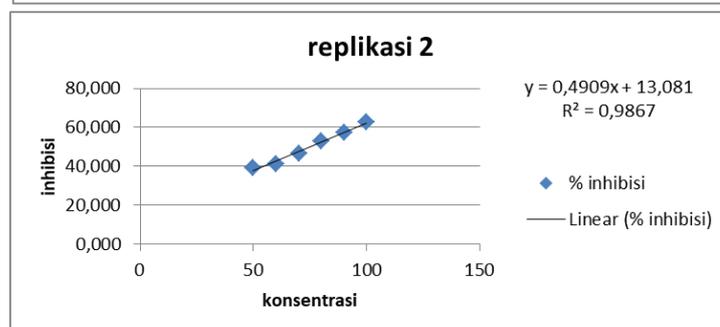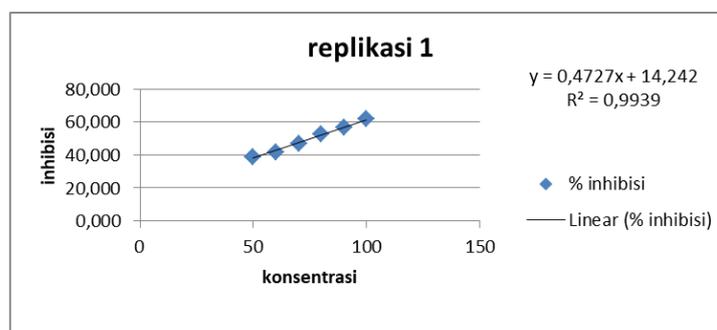
6. Formula 4 Mikropartikel
   Λ=516 nm
   Absorban kontrol= 0,660

Konsentrasi (µg/mL)	Abs. Kontrol	Abs. formula 4			% Inhibisi			IC50				
		1	2	3	1	2	3	1	2	3	Rata-rata	SD
50	0,66	0,407	0,408	0,407	38,333	38,182	38,333					
60	0,66	0,387	0,387	0,386	41,364	41,364	41,515					
70	0,66	0,356	0,355	0,356	46,061	46,212	46,061	80,586	80,380	80,559	80,508	0,112
80	0,66	0,327	0,327	0,326	50,455	50,455	50,606					
90	0,66	0,301	0,3	0,301	54,394	54,545	54,394					
100	0,66	0,287	0,286	0,288	56,515	56,667	56,364					

replikasi 1

$y = 0,384x + 19,055$
$R^2 = 0,9904$

♦ % inhibisi
—— Linear (% inhibisi)

replikasi 2

$y = 0,3892x + 18,716$
$R^2 = 0,9906$

♦ % inhibisi
—— Linear (% inhibisi)

replikasi 3

$y = 0,381x + 19,307$
$R^2 = 0,989$

♦ % inhibisi
—— Linear (% inhibisi)
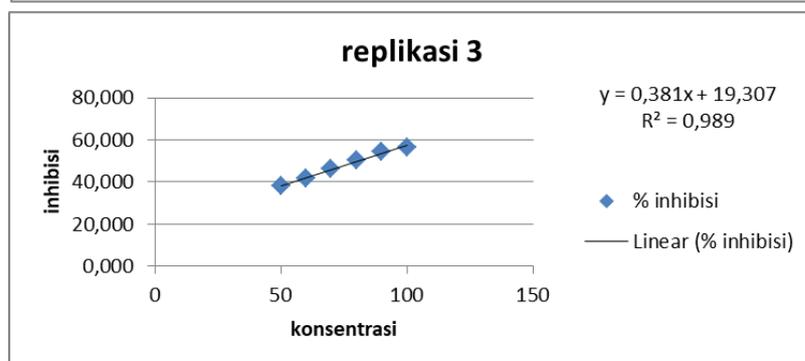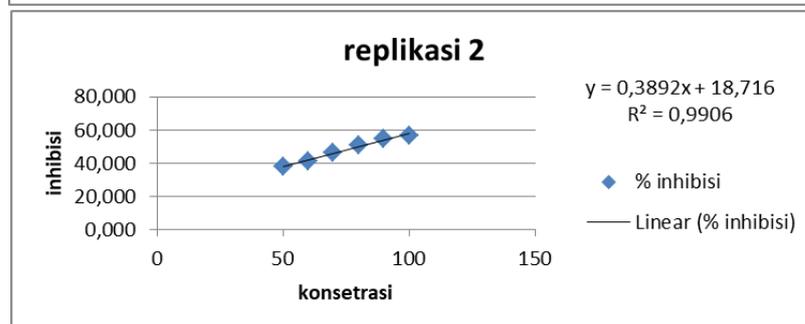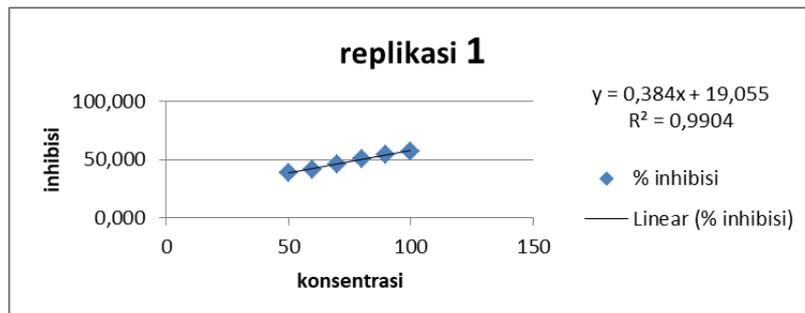
7. Formula 5 Mikropartikel
   Λ=516 nm
   Absorban kontrol= 0,660

Konsentrasi (µg/mL)	Abs. Kontrol	Abs. formula 5			% Inhibisi			IC50				
		1	2	3	1	2	3	1	2	3	Rata-rata	SD
50	0,66	0,413	0,413	0,413	37,424	37,424	37,424					
60	0,66	0,379	0,38	0,379	42,576	42,424	42,576					
70	0,66	0,353	0,352	0,352	46,515	46,667	46,667	82,911	82,987	82,636	82,844	0,185
80	0,66	0,334	0,334	0,333	49,394	49,394	49,545					
90	0,66	0,31	0,311	0,31	53,030	52,879	53,030					
100	0,66	0,299	0,299	0,298	54,697	54,697	54,848					

replikasi 1

y = 0,3446x + 21,429
R² = 0,9783

♦ % inhibisi
—— Linear (% inhibisi)

replikasi 2

y = 0,3442x + 21,436
R² = 0,9781

♦ % inhibisi
—— Linear (% inhibisi)

replikasi 3

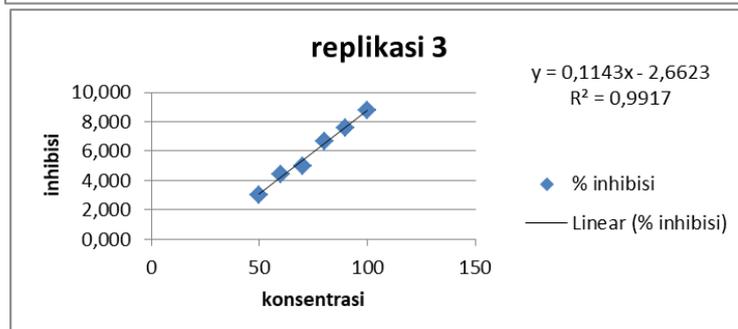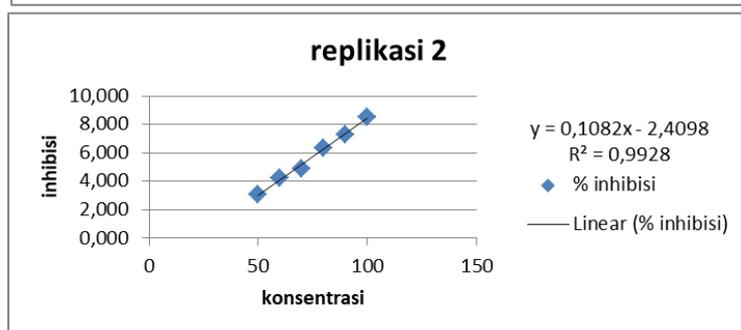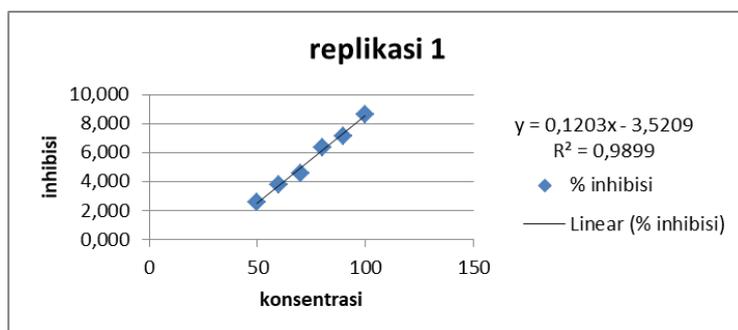y = 0,3468x + 21,342
R² = 0,9783

♦ % inhibisi
—— Linear (% inhibisi)
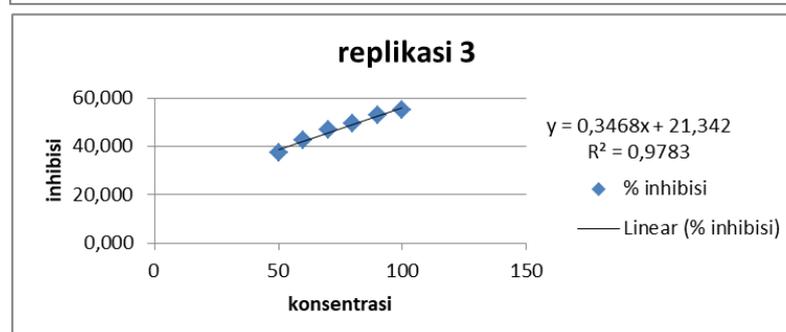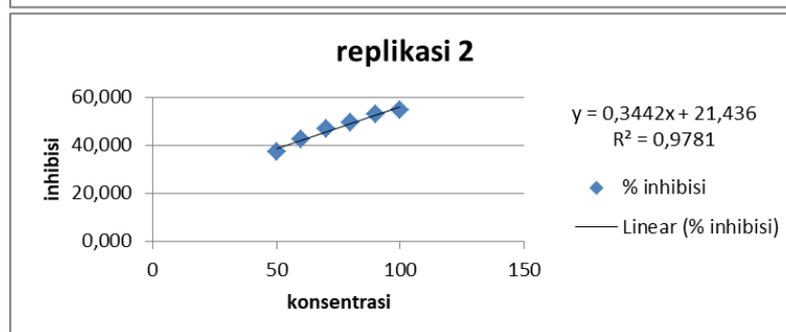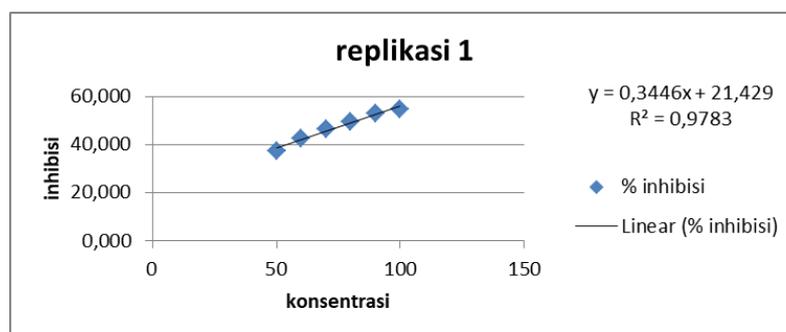
8. Formula 3 Mikropartikel (tanpa ekstrak)
   Λ=516 nm
   Absorban kontrol= 0,660

Konsentrasi (µg/mL)	Abs. Kontrol	Abs. formula 3 tanpa ekstrak			% Inhibisi			IC50				
		1	2	3	1	2	3	1	2	3	Rata-rata	SD
50	0,66	0,643	0,64	0,64	2,576	3,030	3,030	444,895	484,379	460,738	463,337	19,87
60	0,66	0,635	0,632	0,631	3,788	4,242	4,394					
70	0,66	0,63	0,628	0,627	4,545	4,848	5,000					
80	0,66	0,618	0,618	0,616	6,364	6,364	6,667					
90	0,66	0,613	0,612	0,61	7,121	7,273	7,576					
100	0,66	0,603	0,604	0,602	8,636	8,485	8,788					

replikasi 1

$y = 0,1203x - 3,5209$
$R^2 = 0,9899$
◆ % inhibisi
— Linear (% inhibisi)

replikasi 2

$y = 0,1082x - 2,4098$
$R^2 = 0,9928$
◆ % inhibisi
— Linear (% inhibisi)

replikasi 3

$y = 0,1143x - 2,6623$
$R^2 = 0,9917$
◆ % inhibisi
— Linear (% inhibisi)

9. Hasil uji statistik antioksidan

Tests of Normality

	formula	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
antioksidan	f1	.363	3	.	.801	3	.117
	f2	.371	3	.	.783	3	.074
	f3	.316	3	.	.889	3	.352
	f4	.341	3	.	.846	3	.231
	f5	.307	3	.	.903	3	.396

a. Lilliefors Significance Correction

Descriptives

antioksidan

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
f1	3	76.72333	.056977	.032895	76.58180	76.86487	76.687	76.789
f2	3	77.83867	.181423	.104745	77.38799	78.28935	77.727	78.048
f3	3	75.31800	.288958	.166830	74.60019	76.03581	75.101	75.646
f4	3	80.50833	.111957	.064638	80.23022	80.78645	80.380	80.586
f5	3	82.84467	.184663	.106615	82.38594	83.30339	82.636	82.987
Total	15	78.64660	2.801733	.723404	77.09505	80.19815	75.101	82.987

Test of Homogeneity of Variances

antioksidan

Levene Statistic	df1	df2	Sig.
2.893	4	10	.079

ANOVA

antioksidan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	109.563	4	27.391	823.575	.000
Within Groups	.333	10	.033		
Total	109.896	14			

Lampiran 9. Bukti Cek Plagiarisme

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ORIGINALITY REPORT

9%	11%	4%	3%
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9	repository.poltekkes-tjk.ac.id Internet Source	1%

Lampiran 10. Bimbingan Tugas Akhir

No	Tanggal	Pembimbing Proposal	Topik	Disetujui	Aksi
1	7 Oktober 2024	RAHMAT SANTOSO	Membahas Topik Penelitian		👁 🗑
1	25 Oktober 2024	RAHMA ZISKA	membahas topik penelitian dan jurnal acuan		👁 🗑
2	9 November 2024	RAHMA ZISKA	Laporan Kemajuan 1, dan membhas BAB 1		👁 🗑
2	22 Oktober 2024	RAHMAT SANTOSO	Membahas alur penelitian		👁 🗑
3	25 November 2024	RAHMA ZISKA	Pengumpulan BAB I		👁 🗑
3	30 Oktober 2024	RAHMAT SANTOSO	Membahas Latar Belakang		👁 🗑
4	7 Desember 2024	RAHMA ZISKA	Pengumpulan ulang BAB 1 dan 2		👁 🗑
4	2 November 2024	RAHMAT SANTOSO	Membahas sediaan mikro dan nano		👁 🗑
5	21 Desember 2024	RAHMA ZISKA	Laporan Kemajuan 2, dan penyerahan bab 1,2,3		👁 🗑
5	9 November 2024	RAHMAT SANTOSO	Laporan Kemajuan 1		👁 🗑
6	15 November 2024	RAHMAT SANTOSO	Pembahasan pengujian ekstrak		👁 🗑
7	3 Desember 2024	RAHMAT SANTOSO	Pembahasan bab 1 dan alur penelitian		👁 🗑
8	7 Desember 2024	RAHMAT SANTOSO	Penyerahan bab 1,2,3		👁 🗑
9	21 Desember 2024	RAHMAT SANTOSO	Laporan kemajuan 2		👁 🗑

No	Tanggal	Dosen Pembimbing	Topik	Disetujui	Aksi
1	8 Maret 2025	RAHMAT SANTOSO	Konsultasi sediaan Mikro	✔	👁 🗑
1	10 Maret 2025	RAHMA ZISKA	Konsultasi sediaan Mikro	✔	👁 🗑
2	11 Maret 2025	RAHMAT SANTOSO	Konsultasi sediaan Mikro	✔	👁 🗑
2	5 Mei 2025	RAHMA ZISKA	Laporan progress	✔	👁 🗑
3	5 Mei 2025	RAHMAT SANTOSO	Laporan Kemajuan 1	✔	👁 🗑
3	17 Mei 2025	RAHMA ZISKA	Laporan Kemajuan 1	✔	👁 🗑
4	22 Mei 2025	RAHMA ZISKA	Laporan progress	✔	👁 🗑
4	9 Mei 2025	RAHMAT SANTOSO	uji PSA	✔	👁 🗑
5	27 Mei 2025	RAHMAT SANTOSO	Laporan progress	✔	👁 🗑
5	17 Juni 2025	RAHMA ZISKA	Laporan progress	✔	👁 🗑
6	17 Juni 2025	RAHMAT SANTOSO	Laporan kemajuan 2	✔	👁 🗑
6	10 Juli 2025	RAHMA ZISKA	Revisi Draft Skripsi	✔	👁 🗑
7	2 Juli 2025	RAHMAT SANTOSO	Konsultasi sediaan Nano	✔	👁 🗑
7	4 Juli 2025	RAHMA ZISKA	Konsultasi Lanjutan	✔	👁 🗑
8	5 Juli 2025	RAHMAT SANTOSO	Laporan progress	✔	👁 🗑
8	10 Juli 2025	RAHMA ZISKA	Revisi draft	✔	👁 🗑

Lampiran 11. *Curriculum Vitae*

BIODATA

Nama lengkap   : Afifah Isybillah Ahmad

Nama panggilan   : Afifah

Tempat/Tanggal lahir : Metro, 17 September 2001

Jenis kelamin   : Perempuan

Agama   : Islam

Alamat   : Jl. Anwar, Kelurahan Ganjar Asri, Kecamatan
                       Metro Barat, Kota Metro, Provinsi Lampung

Email   : afifahisybillah20@gmail.com

Nama Ayah   : Ahmat Subandi

Nama Ibu   : Desy Eva Rohmahwati