BAB V
KESIMPULAN DAN SARAN

A. Kesimpulan

Berdasarkan dari hasil penelitian yang telah dilakukan dapat diperoleh kesimpulan bahwa:

Pertama, *Solid Lipid Nanoparticles* (SLN) myrisetin dapat dibuat menggunakan kombinasi metode emulsifikasi pelarut dan sonikasi.

Kedua, myrisetin dalam bentuk SLN tidak stabil pada minggu kedua sudah memisah terbentuk endapan irreversibel.

Ketiga, karakterisasi myrisetin dalam SLN dengan lipid yang terpilih yaitu Apifil 2% dapat menghasilkan ukuran partikel terkecil 105,5 ± 0,70; potensial zeta -20,52 mV, dapat menghasilkan efisiensi penjerapan sebesar 73,56% dan memiliki aktifitas antioksidan dengan IC_{50} 38,77 ppm.

B. Saran

Penelitian ini masih banyak kekurangan, maka perlu dilakukan penelitian lebih lanjut mengenai :

Pertama, perlu dilakukan optimasi surfaktan yang lebih beragam.

Kedua, perlu dilakukan uji morfologi untuk mengetahui bentuk sediaan dari SLN.

Ketiga, pengembangan dalam bentuk sediaan obat.

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L A M P I R A N

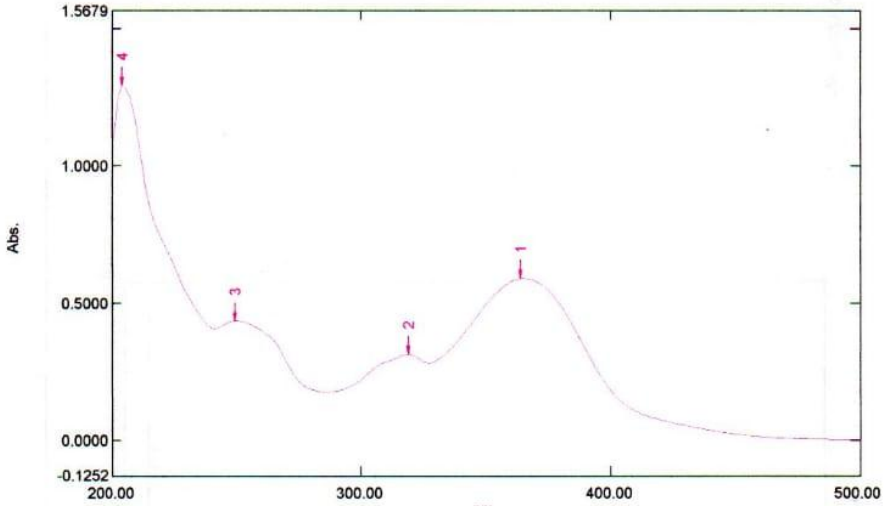
Lampiran 1. Penentuan Panjang gelombang dan Pembuatan kurva baku

a. Penentuan panjang gelombang maksimum

Spectrum Peak Pick Report

03/23/2019 08:30:25 AM

Data Set: File_190323_082649 - RawData



No.	P/V	Wavelength	Abs.	Description
1	↑	364.00	0.5917	
2	↑	319.00	0.3150	
3	↑	249.00	0.4369	
4	↑	204.00	1.2942	
5	↓	327.00	0.2818	
6	↓	286.00	0.1763	
7	↓	241.00	0.4067	

[Measurement Properties]
Wavelength Range (nm.): 200.00 to 500.00
Scan Speed: Medium
Sampling Interval: 1.0
Auto Sampling Interval: Disabled
Scan Mode: Single

[Instrument Properties]
Instrument Type: UV-1800 Series
Measuring Mode: Absorbance
Slit Width: 1.0 nm
Light Source Change Wavelength: 340.0 nm
S/R Exchange: Normal

[Attachment Properties]
Attachment: None

[Operation]
Threshold: 0.0010000
Points: 4
InterPolate: Disabled
Average: Disabled

[Sample Preparation Properties]
Weight: 359
Volume:
Dilution:
Path Length:
Additional Information:

Page 1 / 1

b. ***Operating Time***

Kinetics Data Print Report

03/06/2019 08:28:48 AM

Time (Minute)	RawData ...
0.000	0.557
1.000	0.558
2.000	0.557
3.000	0.558
4.000	0.557
5.000	0.557
6.000	0.557
7.000	0.557
8.000	0.557
9.000	0.557
10.000	0.557
11.000	0.557
12.000	0.556
13.000	0.556
14.000	0.556
15.000	0.557
16.000	0.556
17.000	0.556
18.000	0.556
19.000	0.556
20.000	0.555
21.000	0.555
22.000	0.556
23.000	0.556
24.000	0.555
25.000	0.556
26.000	0.556
27.000	0.556
28.000	0.556
29.000	0.555
30.000	0.555

c. Linearitas

- $c1 \times v1 = c2 \times v2$

  $47\ ppm \times 0{,}5\ ml = c2 \times 10\ ml$

  $c2 = 2{,}35\ ppm$

- $c1 \times v1 = c2 \times v2$

  $47\ ppm \times 1\ ml = c2 \times 10\ ml$

  $c2 = 4{,}7\ ppm$

- $c1 \times v1 = c2 \times v2$

  $47\ ppm \times 2\ ml = c2 \times 10\ ml$

  $c2 = 9{,}4\ ppm$

- $c1 \times v1 = c2 \times v2$

  $47\ ppm \times 2{,}5 ml = c2 \times 10\ ml$

  $c2 = 11{,}75\ ppm$

- $c1 \times v1 = c2 \times v2$

  $47\ ppm \times 3\ ml = c2 \times 10\ ml$

  $c2 = 14{,}1\ ppm$

- $c1 \times v1 = c2 \times v2$

  $47\ ppm \times 3{,}5\ ml = c2 \times 10\ ml$

  $c2 = 16{,}45\ ppm$

- $c1 \times v1 = c2 \times v2$

  $47\ ppm \times 4\ ml = c2 \times 10\ ml$

  $c2 = 18{,}8\ ppm$

Konsnetrasi(ppm)	Absorbansi
2,35	0,145
4,7	0,285
9,4	0,541
11,75	0,72
14,1	0,843
16,45	0,981
18,8	1,143

Persamaan linear anatar konsnetrasi (ppm) dan serapan diperoleh nilai:

a= -0,00280

b= 0,06032

r= 0,99935

$y = a + bx$

$y = -0{,}00280 + 0{,}06032x$

Keterangan:

x= konsntrasi (ppm)

y= serapan

hasil linearitas yang diperoleh r = 0,99935; sehingga dapat disimpulkan bahwa data linear.

d. Presisi

Konsemtrasi	**Absorbansi**	**Y**
9,4	0,585	9,74515
9,4	0,582	9,69542
9,4	0,582	9,69542
9,4	0,582	9,69542
9,4	0,585	9,74515
9,4	0,586	9,76173
9,4	0,587	9,77831
9,4	0,588	9,79489
9,4	0,58	9,66226
9,4	0,579	9,64568
	RATA-RATA	9,72194
	SD	0,05016
	CV	0,52%

$$SD = \sqrt{\frac{\Sigma(x - \bar{x})^2}{n - 1}}$$

$$CV = \frac{SD}{X}$$

e. Akurasi

konsentrasi sebenarnya	Absorbansi	Konsentrasi terukur	recovery	Rata-rata
4,7	0,276	4,622	98%	98%
4,7	0,272	4,556	97%	
4,7	0,274	4,589	98%	
9,4	0,561	9,347	99%	100%
9,4	0,562	9,364	100%	
9,4	0,564	9,397	100%	
11,75	0,725	12,066	103%	103%
11,75	0,729	12,133	103%	
11,75	0,73	12,149	103%	

$$\%\, recovery \frac{konsentrasi\ terukur}{konsentrasi\ sebenarnya} \times 100\%$$

f. Penentuan LOD dan LOQ

Konsentrasi	Absorbansi (y)	$\hat{Y}$	$\lvert Y-\hat{Y}\rvert$	$\lvert Y-\hat{Y}\rvert^2$
2,35	0,145	0,13894	0,00606	0,00004
4,7	0,285	0,28069	0,00431	0,00002
9,4	0,541	0,56418	-0,02318	0,00054
11,75	0,72	0,70593	0,01407	0,00020
14,1	0,843	0,84767	-0,00467	0,00002
16,45	0,981	0,98942	-0,00842	0,00007
18,8	1,143	1,13117	0,01183	0,00014
			jumlah	0,00102

$$S_{x/y} = \sqrt{\frac{\Sigma(Y-\hat{Y})^2}{n-2}}$$

$$S_{x/y} = \sqrt{\frac{0{,}00102}{5}}$$

$$S_{x/y} = \sqrt{0{,}000204}$$

$$S_{x/y} = 0{,}0143$$

$$LOD = 3{,}3 \times \frac{Sy/x}{Sl}$$

$$LOD = 3{,}3 \times \frac{0{,}0143}{0{,}06032}$$

$$LOD = 0{,}782$$

$$LOQ = 10 \times \frac{Sy/x}{Sl}$$

$$LOQ = 10 \times \frac{0{,}0143}{0{,}06032}$$

$$LOQ = 2{,}371$$

Lampiran 2. Skrining lipid

Minggu pertama

Minggu kedua

Minggu ketiga

Minggu keempat

Lampiran 3. Ukuran Partikel dan distribusi

Formula 7

Replikasi 1

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

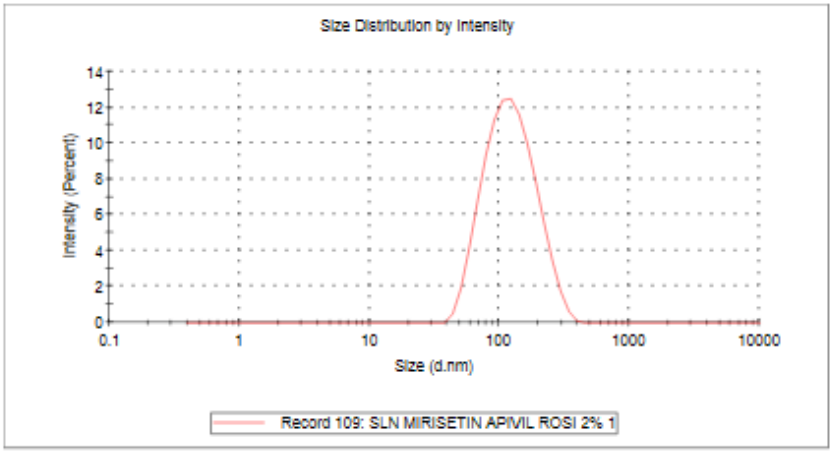
Sample Name:	SLN MIRISETIN APIVIL ROSI 2% 1		
SOP Name:	mansettings.nano		
General Notes:			
File Name:	NANOFITOSOM.dts	**Dispersant Name:**	Water
Record Number:	109	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,100	**Measurement Date and Time:**	26 April 2019 16:52:35

System

Temperature (°C):	25,0	**Duration Used (s):**	60
Count Rate (kcps):	393,0	**Measurement Position (mm):**	4,65
Cell Description:	Disposable sizing cuvette	**Attenuator:**	4

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	105,5	**Peak 1:**	131,1	100,0	58,25
PdI:	0,224	**Peak 2:**	0,000	0,0	0,000
Intercept:	0,906	**Peak 3:**	0,000	0,0	0,000
Result quality	Good				



Replikasi 2

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

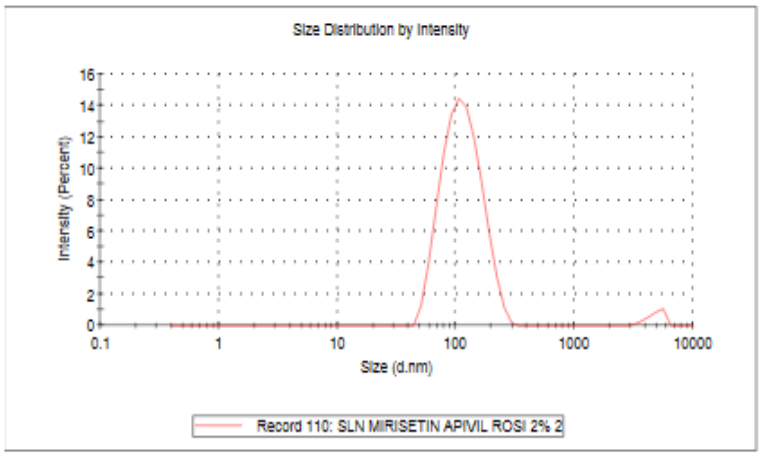
Sample Name:	SLN MIRISETIN APIVIL ROSI 2% 2		
SOP Name:	mansettings.nano		
General Notes:			
File Name:	NANOFITOSOM.dts	**Dispersant Name:**	Water
Record Number:	110	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,100	**Measurement Date and Time:**	26 April 2019 16:54:38

System

Temperature (°C):	25,0	**Duration Used (s):**	60
Count Rate (kcps):	380,2	**Measurement Position (mm):**	4,65
Cell Description:	Disposable sizing cuvette	**Attenuator:**	4

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	104,4	**Peak 1:**	118,3	97,1	43,67
PdI:	0,239	**Peak 2:**	4795	2,9	726,1
Intercept:	0,905	**Peak 3:**	0,000	0,0	0,000
Result quality	Good				



Replikasi 3

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name:	SLN MIRISETIN APIVIL ROSI 2% 3
SOP Name:	mansettings.nano
General Notes:	

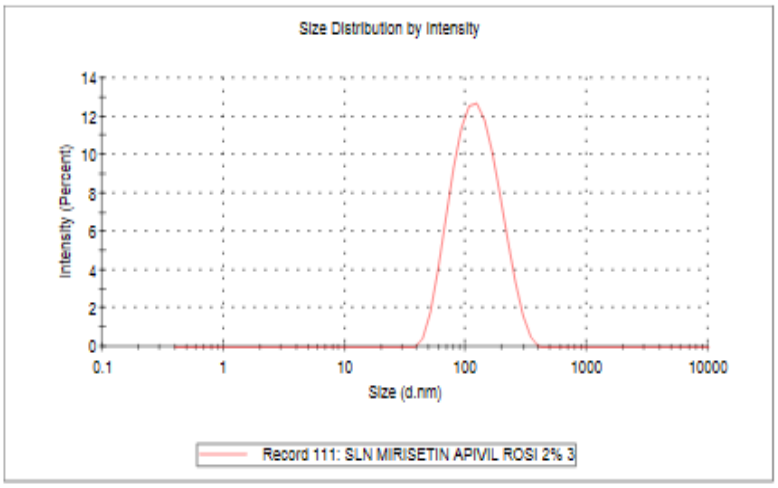
File Name:	NANOFITOSOM.dts	**Dispersant Name:**	Water
Record Number:	111	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,100	**Measurement Date and Time:**	26 April 2019 16:56:42

System

Temperature (°C):	25,0	**Duration Used (s):**	60
Count Rate (kcps):	389,2	**Measurement Position (mm):**	4,65
Cell Description:	Disposable sizing cuvette	**Attenuator:**	4

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	105,7	**Peak 1:**	130,9	100,0	56,90
PdI:	0,234	**Peak 2:**	0,000	0,0	0,000
Intercept:	0,910	**Peak 3:**	0,000	0,0	0,000
Result quality	Good				



Formulasi 8

Replikasi 1

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name:	SLN MIRISETIN APIVIL ROSI 3% 1		
SOP Name:	mansettings.nano		
General Notes:			
File Name:	NANOFITOSOM.dts	**Dispersant Name:**	Water
Record Number:	106	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,100	**Measurement Date and Time:**	26 April 2019 16:42:39

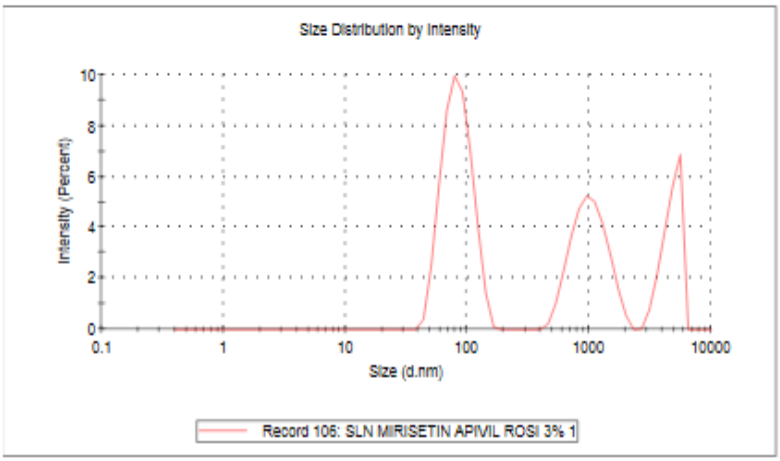
System

Temperature (°C):	25,0	**Duration Used (s):**	60
Count Rate (kcps):	270,6	**Measurement Position (mm):**	1,05
Cell Description:	Disposable sizing cuvette	**Attenuator:**	3

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	196,9	**Peak 1:**	84,71	49,2	22,50
PdI:	0,781	**Peak 2:**	1040	31,5	333,3
Intercept:	0,796	**Peak 3:**	4732	19,3	758,1

Result quality Refer to quality report



Replikasi 2

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name:	SLN MIRISETIN APIVIL ROSI 3% 2		
SOP Name:	mansettings.nano		
General Notes:			
File Name:	NANOFITOSOM.dts	**Dispersant Name:**	Water
Record Number:	107	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,100	**Measurement Date and Time:**	26 April 2019 16:44:52

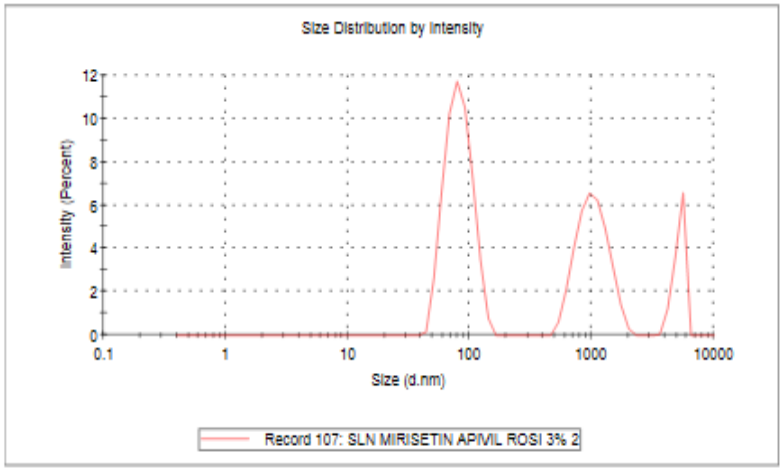
System

Temperature (°C):	25,0	**Duration Used (s):**	60
Count Rate (kcps):	279,9	**Measurement Position (mm):**	1,05
Cell Description:	Disposable sizing cuvette	**Attenuator:**	3

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	212,6	**Peak 1:**	82,65	53,3	20,28
PdI:	0,720	**Peak 2:**	1039	35,2	300,2
Intercept:	0,786	**Peak 3:**	5160	11,5	503,5

Result quality Refer to quality report



Replikasi 3

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name:	SLN MIRISETIN APIVIL ROSI 3% 3		
SOP Name:	mansettings.nano		
General Notes:			
File Name:	NANOFITOSOM.dts	**Dispersant Name:**	Water
Record Number:	108	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,100	**Measurement Date and Time:**	26 April 2019 16:47:06

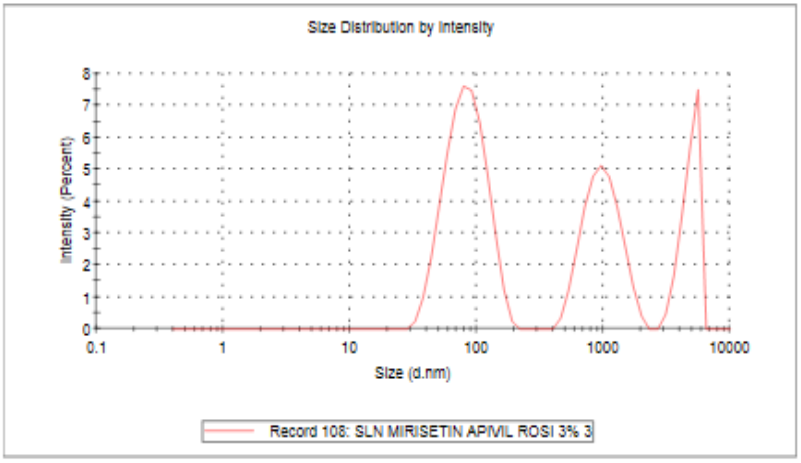
System

Temperature (°C):	25,0	**Duration Used (s):**	60
Count Rate (kcps):	293,2	**Measurement Position (mm):**	1,05
Cell Description:	Disposable sizing cuvette	**Attenuator:**	3

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	217,8	**Peak 1:**	86,06	50,5	30,47
PdI:	0,732	**Peak 2:**	1009	30,7	326,0
Intercept:	0,776	**Peak 3:**	4828	18,8	717,3

Result quality Refer to quality report



Formulasi 10

Replikasi 1

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name:	SLN MIRISETIN APIVIL ROSI 4% 1
SOP Name:	mansettings.nano
General Notes:	

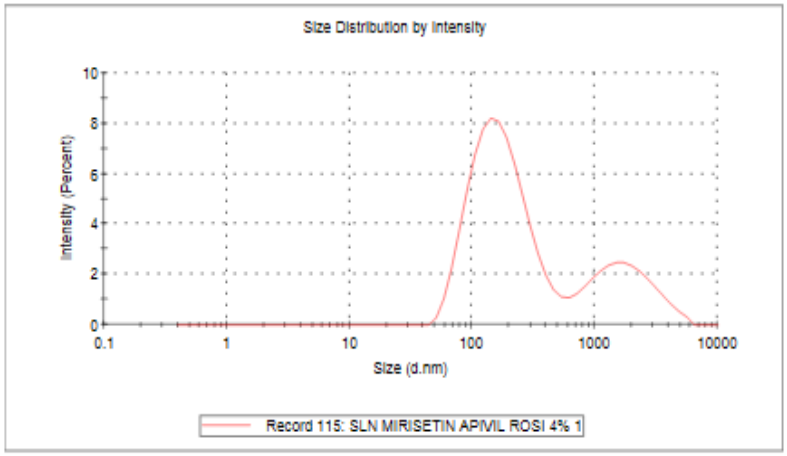
File Name:	NANOFITOSOM.dts	**Dispersant Name:**	Water
Record Number:	115	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,100	**Measurement Date and Time:**	26 April 2019 17:15:16

System

Temperature (°C):	25,0	**Duration Used (s):**	100
Count Rate (kcps):	99,4	**Measurement Position (mm):**	1,05
Cell Description:	Disposable sizing cuvette	**Attenuator:**	2

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	187,4	**Peak 1:**	188,7	74,4	110,5
PdI:	0,418	**Peak 2:**	1898	25,6	1073
Intercept:	0,933	**Peak 3:**	0,000	0,0	0,000
Result quality	Good				



Replikasi 2

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name:	SLN MIRISETIN APIVIL ROSI 4% 2		
SOP Name:	mansettings.nano		
General Notes:			
File Name:	NANOFITOSOM.dts	**Dispersant Name:**	Water
Record Number:	116	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,100	**Measurement Date and Time:**	26 April 2019 17:18:41

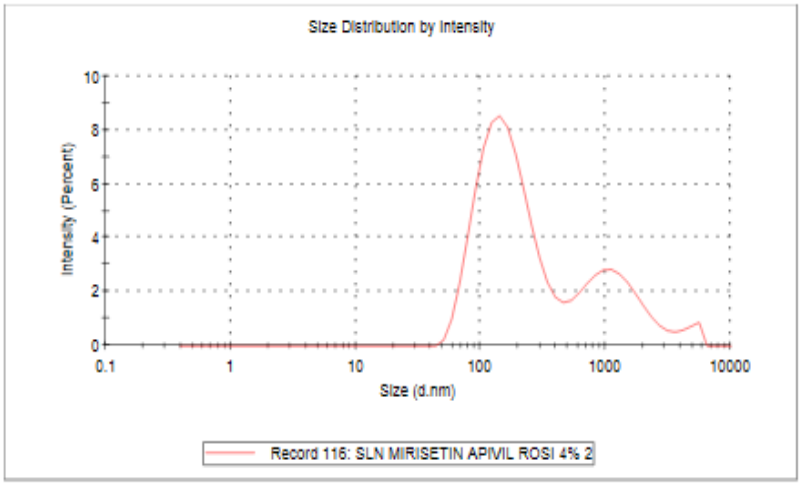
System

Temperature (°C):	25,0	**Duration Used (s):**	100
Count Rate (kcps):	101,1	**Measurement Position (mm):**	1,05
Cell Description:	Disposable sizing cuvette	**Attenuator:**	2

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	187,6	**Peak 1:**	172,0	70,7	88,24
PdI:	0,425	**Peak 2:**	1242	26,6	689,2
Intercept:	0,933	**Peak 3:**	4671	2,6	739,5

Result quality Good



Replikasi 3

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

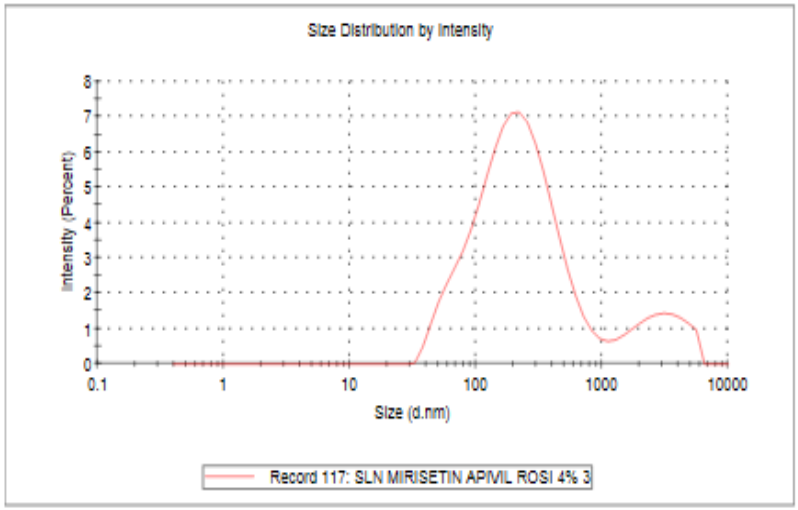
Sample Name:	SLN MIRISETIN APIVIL ROSI 4% 3		
SOP Name:	mansettings.nano		
General Notes:			
File Name:	NANOFITOSOM.dts	**Dispersant Name:**	Water
Record Number:	117	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,100	**Measurement Date and Time:**	26 April 2019 17:22:06

System

Temperature (°C):	25,0	**Duration Used (s):**	100
Count Rate (kcps):	101,1	**Measurement Position (mm):**	1,05
Cell Description:	Disposable sizing cuvette	**Attenuator:**	2

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	186,0	**Peak 1:**	249,4	86,7	187,4
PdI:	0,446	**Peak 2:**	2965	13,3	1291
Intercept:	0,929	**Peak 3:**	0,000	0,0	0,000
Result quality	Good				



Formulasi 11

Replikasi 1

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

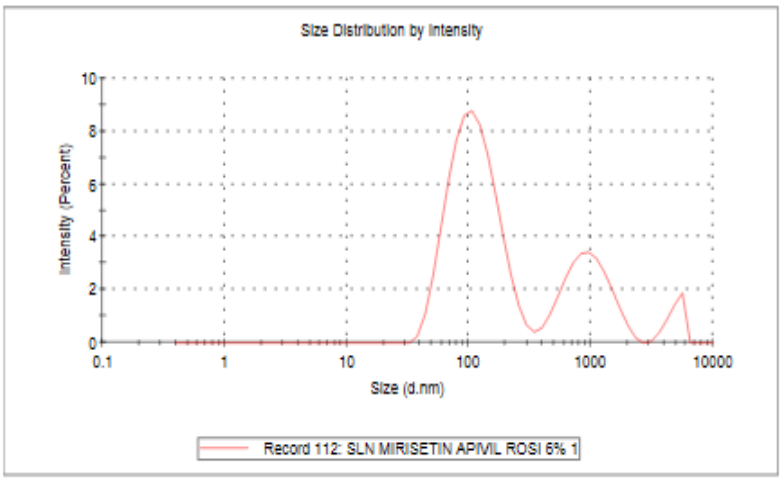
Sample Name:	SLN MIRISETIN APIVIL ROSI 6% 1		
SOP Name:	mansettings.nano		
General Notes:			
File Name:	NANOFITOSOM.dts	Dispersant Name:	Water
Record Number:	112	Dispersant RI:	1,330
Material RI:	1,52	Viscosity (cP):	0,8872
Material Absorbtion:	0,100	Measurement Date and Time:	26 April 2019 17:03:02

System

Temperature (°C):	25,0	Duration Used (s):	60
Count Rate (kcps):	302,2	Measurement Position (mm):	1,05
Cell Description:	Disposable sizing cuvette	Attenuator:	3

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	114,2	Peak 1:	117,5	69,3	53,97
PdI:	0,756	Peak 2:	975,1	26,0	400,1
Intercept:	0,922	Peak 3:	4857	4,7	691,7
Result quality	Refer to quality report				



Replikasi 2

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name:	SLN MIRISETIN APIVIL ROSI 6% 1		
SOP Name:	mansettings.nano		
General Notes:			
File Name:	NANOFITOSOM.dts	**Dispersant Name:**	Water
Record Number:	112	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,100	**Measurement Date and Time:**	26 April 2019 17:03:02

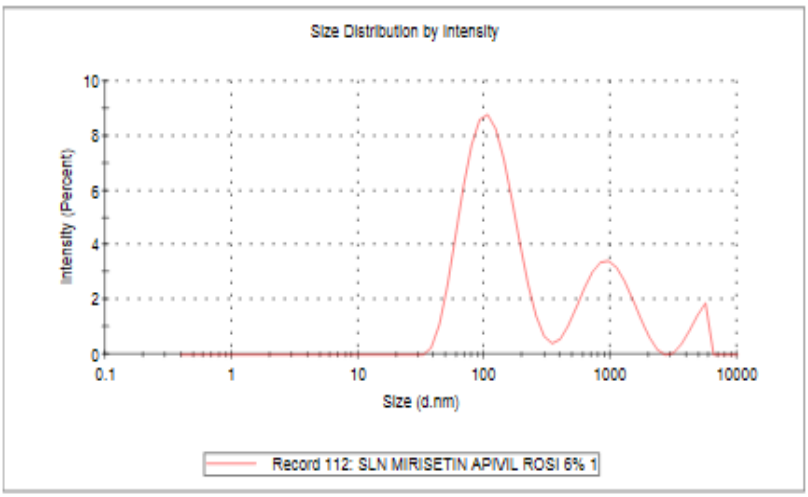
System

Temperature (°C):	25,0	**Duration Used (s):**	60
Count Rate (kcps):	302,2	**Measurement Position (mm):**	1,05
Cell Description:	Disposable sizing cuvette	**Attenuator:**	3

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	114,2	**Peak 1:**	117,5	69,3	53,97
PdI:	0,756	**Peak 2:**	975,1	26,0	400,1
Intercept:	0,922	**Peak 3:**	4857	4,7	691,7

Result quality Refer to quality report



Replikasi 3

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name:	SLN MIRISETIN APIVIL ROSI 6% 3
SOP Name:	mansettings.nano
General Notes:	

File Name:	NANOFITOSOM.dts	Dispersant Name:	Water
Record Number:	114	Dispersant RI:	1,330
Material RI:	1,52	Viscosity (cP):	0,8872
Material Absorbtion:	0,100	Measurement Date and Time:	26 April 2019 17:07:29

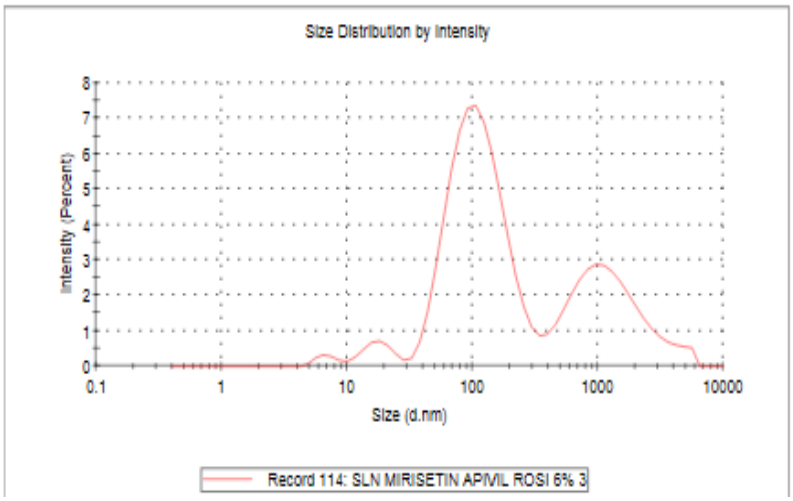
System

Temperature (°C):	25,0	Duration Used (s):	60
Count Rate (kcps):	299,3	Measurement Position (mm):	1,05
Cell Description:	Disposable sizing cuvette	Attenuator:	3

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	112,8	Peak 1:	119,3	63,5	61,65
PdI:	0,741	Peak 2:	1447	31,8	1088
Intercept:	0,921	Peak 3:	17,85	3,4	4,607

Result quality: Refer to quality report



Lampiran 4. Potensial zeta

Lampiran 5. Perhitungan Efisiensi Penjerapan

FORMULA 7 APIFIL 2%

- Formulasi induk→ 200 mg SLN myrisetin/10ml etanol p.a = 20.000 ppm
- Perhitungan teoritis

  Myrisetin =19,2 mg

  Eksipien (tween 80+ Apifil 4%) = 11000 mg

  % kadar myrisetin $= \frac{19,2}{11000+19,2} \times 100\% = 0,174\%$

  Kadar dalam 200 mg SLN $= 0,174\ \% \times 200\ mg = 34,8\ mg$

- Perhitungan kadar Myrisetin terjerap menggunakan persamaan linear

  $y = a + bx$

  $1,539 = -0,00280 + 0,06032x$

  $1,539 + 0,00280 = 0,06032x$

  $x = 25,560\ ppm$

- % kadar = $\frac{25,560\ ppm}{20.000\ ppm} \times 100\% = 0,1278\%$
- Kadar dalam 200 mg SLN myrisetin = $0,128\% \times 200\ mg = 25,6mg$
- % Efisiensi Penjerapan $= \frac{kadar\ terjerap}{kadar\ teoritis} \times 100\%$

$$= \frac{25,6\ mg}{34,8\ mg} \times 100\% = 73,56\%$$

FORMULA 8 APIFIL 3%

- Formulasi induk→ 200 mg SLN myrisetin/10ml etanol p.a = 20.000 ppm
- Perhitungan teoritis

  Myrisetin = 20,8mg

  Eksipien (tween 80+ Apifil 4%) = 11500 mg

  % kadar myrisetin $= \frac{20,8}{11500+20,8} \times 100\% = 0,180\%$

  Kadar dalam 200 mg SLN $= 0,180\ \% \times 200\ mg = 36\ mg$

- Perhitungan kadar Myrisetin terjerap menggunakan persamaan linear

  $y = a + bx$

  $0,630 = -0,00280 + 0,06032x$

$0{,}630 + 0{,}00280 = 0{,}06032x$

$x \quad = 10{,}4907\ ppm$

- % kadar = $\frac{10{,}4907\ ppm}{20.000\ ppm} \times 100\% = 0{,}052\%$
- Kadar dalam 200 mg SLN myrisetin = $0{,}052\% \times 200\ mg = 10{,}4\ mg$
- % Efisiensi Penjerapan $= \frac{kadar\ terjerap}{kadar\ teoritis} \times 100\%$

$$= \frac{10{,}4\ mg}{36\ mg} \times 100\% = 28{,}89\%$$

FORMULA 10 APIFIL 4%

- Formulasi induk→ 200 mg SLN myrisetin/10ml etanol p.a = 20.000 ppm
- Perhitungan teoritis

  Myrisetin =19,8 mg

  Eksipien (tween 80+ Apifil 5%) = 12500 mg

  % kadar myrisetin $= \frac{19{,}8}{12500+19{,}8} \times 100\% = 0{,}158\%$

  Kadar dalam 200 mg SLN $= 0{,}158\% \times 200\ mg = 31{,}6\ mg$
- Perhitungan kadar Myrisetin terjerap menggunakan persamaan linear

  $y = a + bx$

  $0{,}763 = -0{,}00280 + 0{,}06032x$

  $0{,}763 + 0{,}00280 = 0{,}06032x$

  $x = 12{,}6956\ ppm$
- % kadar = $\frac{12{,}6956\ ppm}{20.000\ ppm} \times 100\% = 0{,}0635\%$
- Kadar dalam 200 mg SLN myrisetin = $0{,}0635\% \times 200\ mg = 12{,}7\ mg$
- % Efisiensi Penjerapan $\frac{kadar\ terjerap}{kadar\ teoritis} \times 100\%$

$$\frac{12{,}7\ mg}{31{,}6\ mg} \times 100\% = 40{,}19\%$$

FORMULA 11 APIFIL 5%

- Formulasi induk→ 200 mg SLN myrisetin/10 ml etanol p.a = 20.000 ppm
- Perhitungan teoritis

  Myrisetin =20 mg

Eksipien (tween 80+ Apifil 6%) = 13000 mg

% kadar myrisetin = $\frac{20}{13000+20} \times 100\ \% = 0.154\ \%$

Kadar dalam 200 mg SLN = $0.154\% \times 200\ mg = 30{,}72\ mg$

- Perhitungan kadar Myrisetin terjerap menggunakan persamaan linear

  $y = a + bx$

  $0{,}784 = -0{,}00280 + 0{,}06032x$

  $0{,}763 + 0{,}00280 = 0{,}06032x$

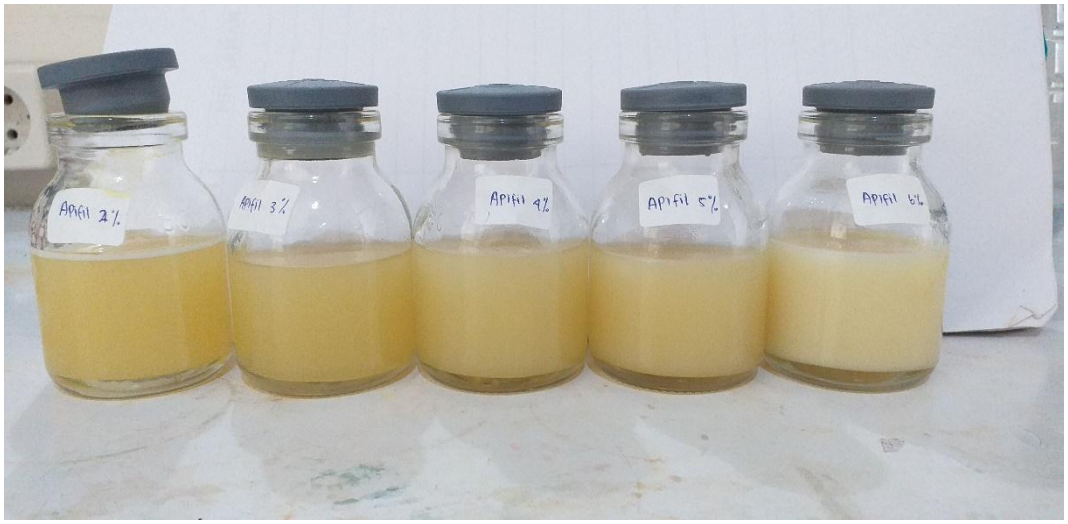
  $x = 13{,}044\ ppm$

- % kadar = $\frac{13{,}044\ ppm}{20.000\ ppm} \times 100\% = 0{,}0652\%$
- Kadar dalam 200 mg SLN myrisetin = $0{,}0652\% \times 200\ mg = 13{,}044\ mg$
- % Efisiensi Penjerapan $\frac{kadar\ terjerap}{kadar\ teoritis} \times 100\%$

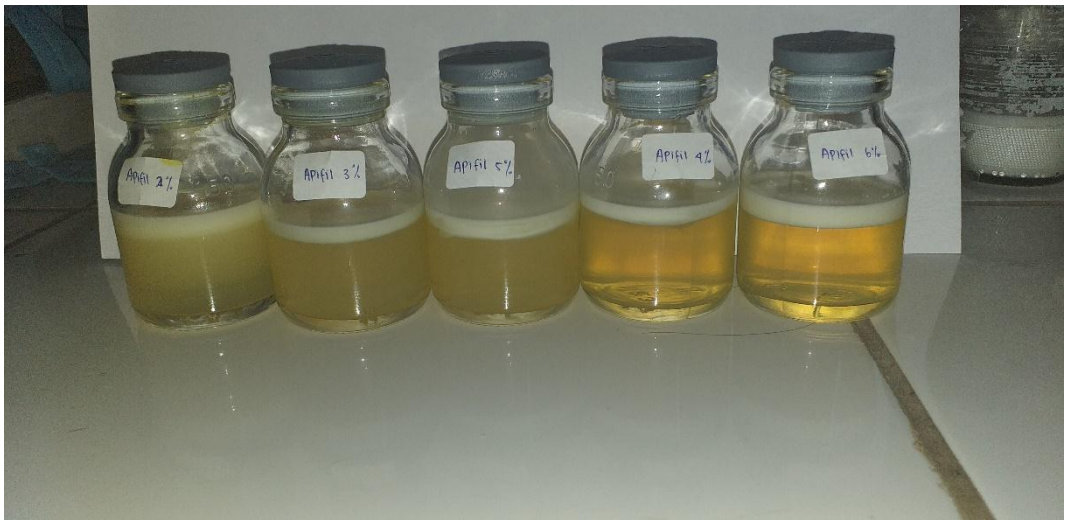
$$\frac{13{,}044\ mg}{30{,}72\ mg} \times 100\% = 42{,}46\%$$

Lampiran 6. Stabilitas penyimpanan

Minggu pertama

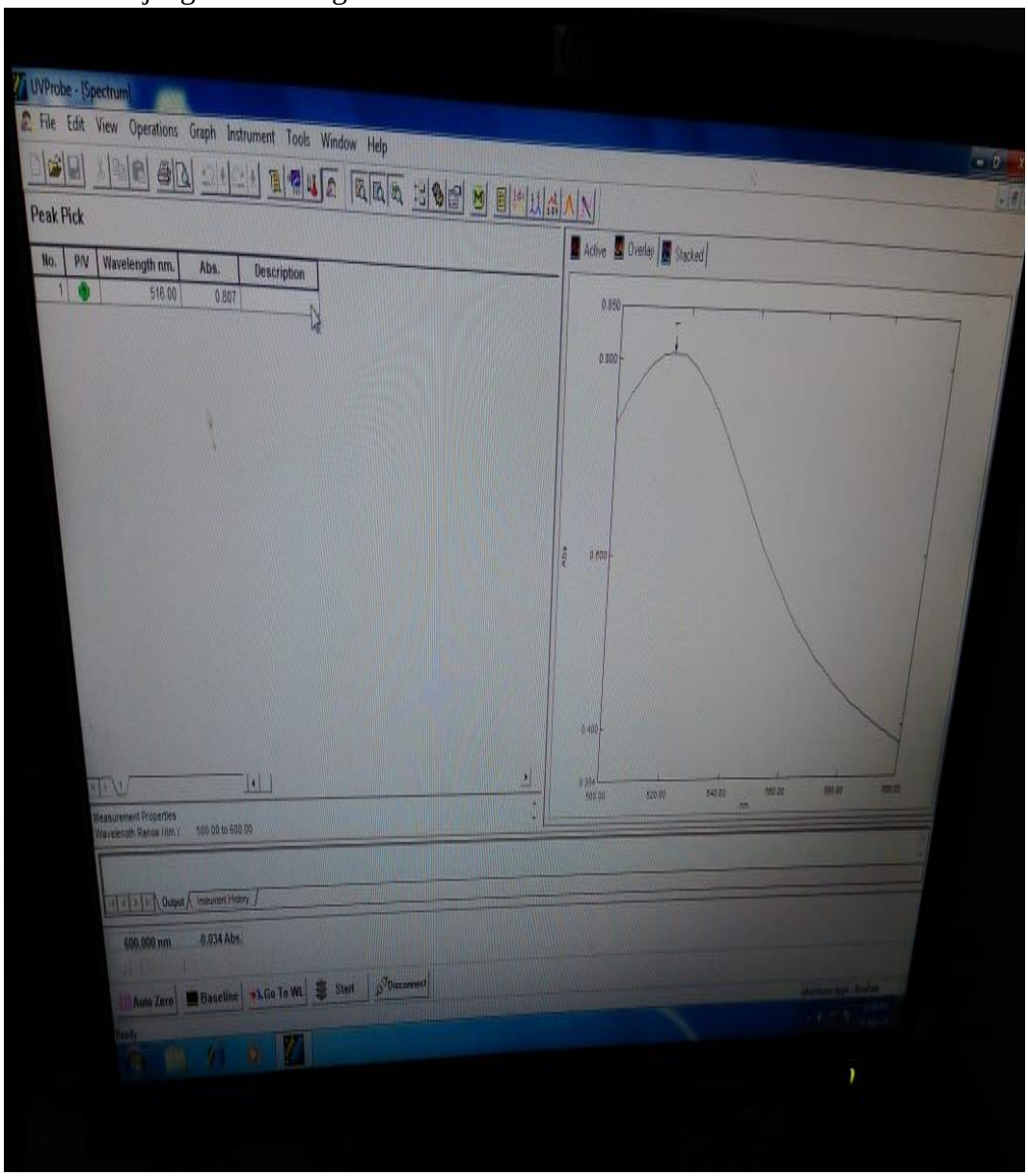


Minggu kedua



Lampiran 7. Hasil DPPH

a. Panjang Gelombang maksimal



b. Operating time

OT Mincehin DPPH 45 menit
4-5-19.

Kinetics Data Print Report

05/04/2019 01:13:10 PM

Time (Minute)	RawData ...
0.000	0.229
1.000	0.229
2.000	0.229
3.000	0.229
4.000	0.229
5.000	0.230
6.000	0.230
7.000	0.230
8.000	0.229
9.000	0.230
10.000	0.229
11.000	0.229
12.000	0.230
13.000	0.230
14.000	0.230
15.000	0.230
16.000	0.230
17.000	0.230
18.000	0.230
19.000	0.230
20.000	0.230
21.000	0.230
22.000	0.230
23.000	0.230
24.000	0.230
25.000	0.230
26.000	0.230
27.000	0.230
28.000	0.230
29.000	0.230
30.000	0.230
31.000	0.230
32.000	0.230
33.000	0.231
34.000	0.231
35.000	0.231
36.000	0.231
37.000	0.230
38.000	0.231
39.000	0.231
40.000	0.231
41.000	0.231
42.000	0.231
43.000	0.231
44.000	0.231
45.000	0.231
46.000	
47.000	
48.000	
49.000	
50.000	

c. Menghitung IC_{50} zat aktif

konsentrasi	ABS REP 1	ABS REP 2	ABS REP 3
15,53	0,249	0,237	0,24
7,77	0,445	0,442	0,438
3,88	0,526	0,528	0,53
1,94	0,578	0,578	0,577
0,97	0,595	0,593	0,597
a	0,6218	0,6237	0,6245
b	-0,0238	-0,0246	-0,0246
r	-0,9993	-0,9991	-0,9998

$$\%inhibisi = \frac{absorbansi\ dpph - absorbansi\ sampel}{absorbansi\ dpph} \times 100\%$$

- Konsentrasi 74,4 ppm

$$replikasi\ 1\ \%inhibisi\ = \frac{0{,}807 - 0{,}206}{0{,}807} \times 100\% = 74{,}47\%$$

$$replikai\ 2\ \%inhibisi = \frac{0{,}807 - 0{,}214}{0{,}807} \times 100\% = 73{,}48\%$$

$$replikasi\ 3\ \%inhibisi = \frac{0{,}807 - 0{,}208}{0{,}807} \times 100\% = 74{,}23\%$$

- Konsentrasi 31 ppm

$$replikasi\ 1\ \%inhibisi\ = \frac{0{,}807 - 0{,}226}{0{,}807} \times 100\% = 72{,}00\%$$

$$replikai\ 2\ \%inhibisi = \frac{0{,}807 - 0{,}229}{0{,}807} \times 100\% = 71{,}62\%$$

$$replikasi\ 3\ \%inhibisi = \frac{0{,}807 - 0{,}231}{0{,}807} \times 100\% = 71{,}38\%$$

- Konsentrasi 15,5 ppm

$$replikasi\ 1\ \%inhibisi\ = \frac{0{,}807 - 0{,}367}{0{,}807} \times 100\% = 54{,}52\%$$

$$replikai\ 2\ \%inhibisi = \frac{0{,}807 - 0{,}356}{0{,}807} \times 100\% = 55{,}89\%$$

$$replikasi\ 3\ \%inhibisi = \frac{0{,}807 - 0{,}354}{0{,}807} \times 100\% = 56{,}13\%$$

- Konsentrasi 7,75 ppm

$$replikasi\ 1\ \%inhibisi\ = \frac{0{,}807 - 0{,}484}{0{,}807} \times 100\% = 40{,}02\%$$

$$replikai\ 2\ \%inhibisi = \frac{0{,}807 - 0{,}487}{0{,}807} \times 100\% = 39{,}65\%$$

$$replikasi\ 3\ \%inhibisi = \frac{0{,}807 - 0{,}482}{0{,}807} \times 100\% = 35{,}81\%$$

- Konsentrasi 3,88 ppm

$$replikasi\ 1\ \%inhibisi\ = \frac{0{,}807 - 0{,}522}{0{,}807} \times 100\% = 35{,}32\%$$

$$replikai\ 2\ \%inhibisi = \frac{0{,}807 - 0{,}522}{0{,}807} \times 100\% = 35{,}32\%$$

$$replikasi\ 3\ \%inhibisi = \frac{0{,}807 - 0{,}518}{0{,}807} \times 100\% = 35{,}81\%$$

Konsentrasi dan %inhibisi

Konsentrasi (ppm)	**replikasi 1 %inhibisi**	**Replikasi 2 %inhibisi**	**Replikasi 3 %inhibisi**
31	72,00	71,62	71,38
15,5	54,52	55,89	56,13
7,75	40,02	39,65	40,27
3,88	35,32	35,32	35,81
1,94	30,48	29,99	29,99
a	29,43	29,36	29,81
b	1,4181	1,4258	1,4069
r	0,9935	0,9876	0,9860

$$IC50 = \frac{50 - a}{b}$$

$$replikasi\ 1\ IC50 = \frac{(50-29{,}43)}{1{,}4181} = 14{,}50\ ppm$$

$$replikasi\ 2\ IC50 = \frac{(50 - 29{,}36)}{1{,}4258} = 14{,}47\ ppm$$

$$replikasi\ 3\ IC50 = \frac{(50 - 429{,}81)}{1{,}4069} = 14{,}34\ ppm$$

Rata-ra IC_{50} = 14,44 ppm

d. Menghitung IC_{50} Formula

konsentrasi	ABS REP 1	ABS REP 2	ABS REP 3
100	**0,152**	0,146	0,149
50	**0,538**	0,533	0,534
12,5	**0,798**	0,789	0,798
6,25	**0,825**	0,822	0,825
3,13	**0,873**	0,873	0,875
A	0,8879	0,8842	0,8885
B	-0,0073	-0,0073	-0,0073
R	-0,9991	-0,9991	-0,9992

$$\%inhibisi = \frac{absorbansi\ dpph - absorbansi\ sampel}{absorbansi\ dpph} \times 100\%$$

- Konsentrasi 80 ppm

$$replikasi\ 1\ \%inhibisi\ = \frac{0{,}807 - 0{,}274}{0{,}807} \times 100\% = 66{,}05\%$$

$$replikai\ 2\ \%inhibisi = \frac{0{,}807 - 0{,}271}{0{,}807} \times 100\% = 66{,}42\%$$

$$replikasi\ 3\ \%inhibisi = \frac{0{,}807 - 0{,}268}{0{,}807} \times 100\% = 66{,}79\%$$

- Konsentrasi 60 ppm

$$replikasi\ 1\ \%inhibisi\ = \frac{0{,}807 - 0{,}322}{0{,}807} \times 100\% = 60{,}10\%$$

$$replikai\ 2\ \%inhibisi = \frac{0{,}807 - 0{,}320}{0{,}807} \times 100\% = 60{,}35\%$$

$$replikasi\ 3\ \%inhibisi = \frac{0{,}807 - 0{,}332}{0{,}807} \times 100\% = 60{,}10\%$$

- Konsentrasi 40 ppm

$$replikasi\ 1\ \%inhibisi\ = \frac{0{,}807 - 0{,}387}{0{,}807} \times 100\% = 52{,}04\%$$

$$replikai\ 2\ \%inhibisi = \frac{0{,}807 - 0{,}385}{0{,}807} \times 100\% = 52{,}29\%$$

$$replikasi\ 3\ \%inhibisi = \frac{0{,}807 - 0{,}382}{0{,}807} \times 100\% = 52{,}66\%$$

- Konsentrasi 25 ppm

$$replikasi\ 1\ \%inhibisi\ = \frac{0{,}807 - 0{,}426}{0{,}807} \times 100\% = 47{,}21\%$$

$$replikai\ 2\ \%inhibisi = \frac{0{,}807 - 0{,}419}{0{,}807} \times 100\% = 48{,}08\%$$

$$replikasi\ 3\ \%inhibisi = \frac{0{,}807 - 0{,}425}{0{,}807} \times 100\% = 47{,}34\%$$

- Konsentrasi 12,5 ppm

$$replikasi\ 1\ \%inhibisi\ = \frac{0{,}807 - 0{,}503}{0{,}807} \times 100\% = 36{,}67\%$$

$$replikai\ 2\ \%inhibisi = \frac{0{,}807 - 0{,}511}{0{,}807} \times 100\% = 36{,}68\%$$

$$replikasi\ 3\ \%inhibisi = \frac{0{,}807 - 0{,}509}{0{,}807} \times 100\% = 36{,}93\%$$

- Konsentrasi 6,25 ppm

$$replikasi\ 1\ \%inhibisi\ = \frac{0{,}807 - 0{,}546}{0{,}807} \times 100\% = 32{,}34\%$$

$$replikai\ 2\ \%inhibisi = \frac{0{,}807 - 0{,}544}{0{,}807} \times 100\% = 32{,}59\%$$

$$replikasi\ 3\ \%inhibisi = \frac{0{,}807 - 0{,}546}{0{,}807} \times 100\% = 32{,}34\%$$

Konsentrasi dan % Inhibisi

Konsentrasi (ppm)	**Replikasi 1 %Iinhibisi**	**Replikasi 2 %inhibisi**	**Replikasi 3 %inhibisi**
80	66,05	66,42	66,79
60	60,10	60,35	60,10
40	52,04	52,29	52,66
25	47,21	48,08	47,34
12,5	37,67	36,68	36,93
6,24	32,34	32,59	32,34
a	32,6946	32,6001	32,3580
b	0,4436	0,4505	0,4559
r	0,9821	0,9787	0,9823

$$replikasi\ 1\ IC50 = \frac{(50 - 32{,}6946)}{0{,}4436} = 39{,}01\ ppm$$

$$replikasi\ 1\ IC50 = \frac{(50 - 32{,}6001)}{0{,}4505} = 38{,}62\ ppm$$

$$replikasi\ 1\ IC50 = \frac{(50 - 31{,}3580)}{0{,}4559} = 38{,}69\ ppm$$

Rata-ra IC_{50} = 38,77 ppm