BAB V
KESIMPULAN DAN SARAN

A. Kesimpulan

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

Pertama, askorbil palmitat dapat dibuat nanofitosom dengan menggunakan metode hidrasi lapis tipis-sonikasi.

Kedua, penggunaan fosfatidilkolin pada konsentrasi tertinggi yaitu pada formula 4 sebesar 73,37 mg mampu menghasilkan ukuran partikel paling kecil yaitu 92,710 nm dan indeks polidisperditas terendah yaitu 0,284 dengan efisiensi penjerapan tertinggi 85,25% setara dengan 8,525 mg dari total 10 mg.

Ketiga, karakterisasi nanofitosom askorbil palmitat menghasilkan ukuran partikel rata-rata pada F1, F2, F3, F4, dan F5 berturut-turut sebesar 95,943; 115,833; 96,860; 92,710 dan 112,567 nm, dengan nilai indeks polidispersitas sekitar 0,284-0,388.

Keempat, nanofitosom askorbil palmitat tidak stabil selama penyimpanan lebih dari 3 minggu

B. Saran

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

Pertama, perlu dilakukan pembuatan nanofitosom dengan metode lainnya yang lebih bisa memberikan ukuran dibawah 100 nm serta metode preparasi untuk pengujian efisiensi penjerapan dan optimasi keadaan suhu, lama proses pada saat pembuatan fitosom sehingga dihasilkan nanofitosom dengan efisiensi penjerapan dan stabilias yang lebih baik.

Kedua, perlu dilakukan uji karakterisasi morfologi nanofitosom menggunakan alat TEM (*Transmission Electron Microscopy*).

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Lampiran 1. Seritifkat Analisis Askorbil Palmitat

Certificate of Analysis

Dr. Ehrenstorfer

Reference Materials for Residue Analysis

Product Identification

10303930 Ascorbyl palmitate
CA Ascorbic acid palmitate
IUPAC Ascorbyl palmitate
Formula C22H38O7
Mol.Weight 414.54
CAS No. 137-66-6

Expiry Date 05.10.2021
Lot Number 155003
Store at 20 °C ±4 °C

Please note: The expiry date is valid under recommended storage conditions only.

Toxicological Data

R Code
S Code
LD50 (Rats female/male in mg/kg) 25000

Physical Data

Phase crystalline solid
Color colourless
Melt.Range 114,3°C °C
Vapour pressure N/A at °C
Solubility in water N/A g/l at °C
Boiling Range (lit.)

Analytical Data

Detection: HPLC/DAD
Column:
Inj.-Vol.: 10.00 µl
Flow: 1.0 ml/min
Ret.-Time: **18.14 min.**

Method Details:
Eluent A: Acetonitrile:H2O+0,5% H3PO4 1:9 for 1 min
Eluent B: Acetonitrile 100% for 5 min
Eluent A -> Eluent B: 19 min

Identity: IR, UV, RT, MS, NMR, EA
Comment Column: YMC-Pack ODS-AQ, 3 µm, 150 x 3 mm

Water Content Determined by Karl-Fischer Titration
Det. Purity 99.0 % Tolerance/Uncertainty +/- 2.0 %

The uncertainty/tolerance of this standard is calculated in accordance with the EURACHEM/CITAC Guide - Quantifying Uncertainty in Analytical Measurement - Second Edition. The uncertainty given is the expanded combined uncertainty and represents an estimated standard deviation equal to the positive square root of the total variance of the uncertainty of components. The expanded uncertainty is U which is Uc(y)*K, where K is the coverage factor at the 95% confidence level (K=2). The expanded uncertainty is based on the combination of uncertainties associated with each individual operation involved in the preparation of this product.

Certified on 05.10.2017
by M. Beck

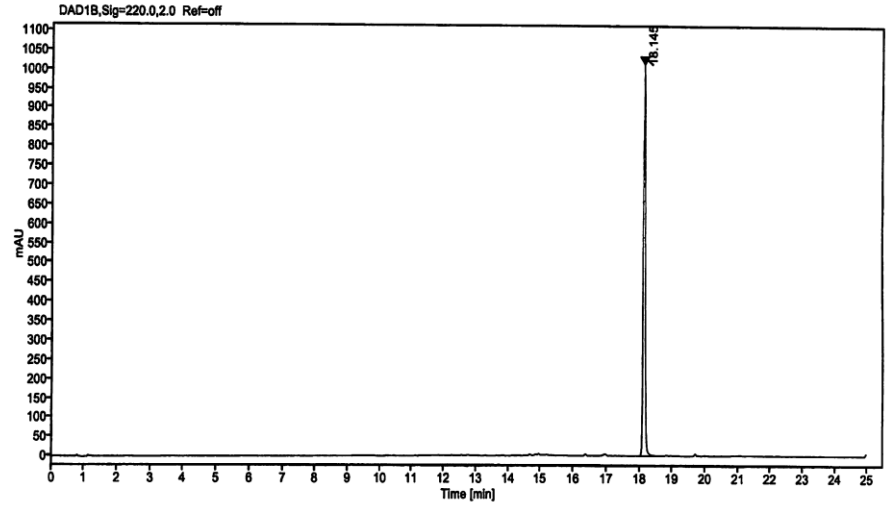
The Laboratory LGC Labor GmbH is accreditated by DAkkS as indicated by the Accreditation Number D-RM-19883-01 & D-PL-19883-01 has shown competence based on ISO Guide 34:2009 with relevant parts of DIN EN ISO/IEC 17025:2005 for production of certified reference materials in form of organic pure substances and in form of single and multi-component solutions organic pure substances.

LGC Labor GmbH · Bgm.-Schlosser-Str. 6 A · 86199 Augsburg · Germany
Phone +49 821 906080 · Fax +49 821 9060888 · augsburg.inquiry@lgcgroup.com

05.10.2017
CF

Data file:	10303930-01.dx	**Instrument:**	DAD4
Sample name:	155003	**Sequence Name:**	05102017-YMC1
Inj. volume [µl]:	10.0	**Injection date:**	10/5/2017 11:43:54 AM
Acq. method:	Gradient_10-100_PK_S2.amx	**Location:**	45

Sample Description Ascorbyl palmitate
Column: YMC-Pack ODS-AQ, 3 µm, 150 x 3 mm



Signal: DAD1B,Sig=220.0,2.0 Ref=off

Nr.	RT [min]	Area	Height	Area%
1	18.145	4107.20960	1011.66	100.00
	Sum	4107.21		

Lampiran 2. Sertifikat Analisis Lipoid

Lipoid

PHOSPHOLIPID GmbH · Member of the Lipoid Group

ANALYTICAL DATA

AN[illegible]

- 1 -

PHOSPHOLIPON 90 G

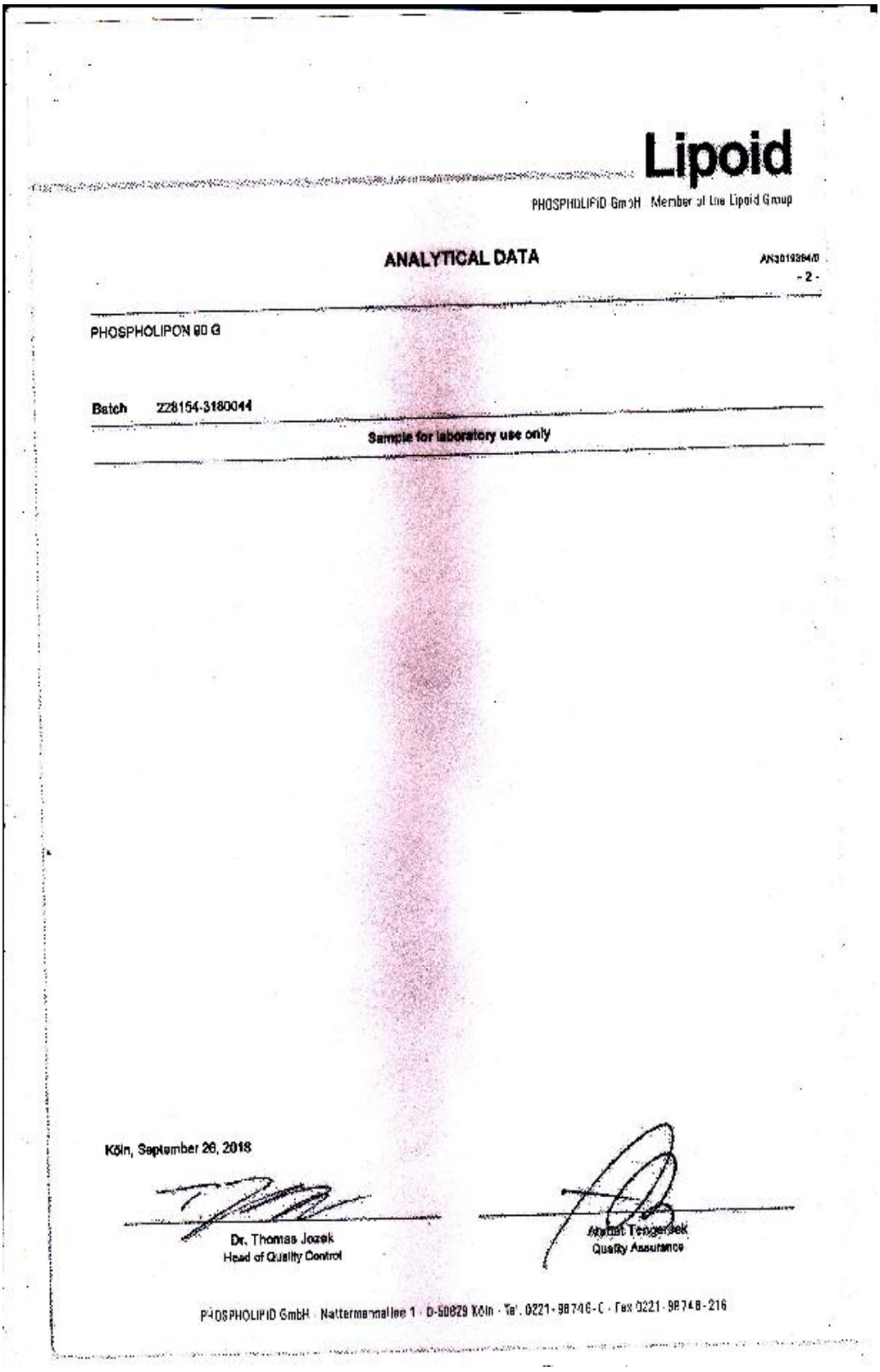
Batch 228154-3180044

Recommended storage n.m.t. +8 °C
Date of production 07/2018

Sample for laboratory use only

Parameter	**Result**	**Specification** min	max	**Unit**	**Method**
Phosphatidylcholine	96,1	94,0	102,0	% (m/m)	05.P07.857
Identity (TLC)	conform to reference	conform to reference			05.P08.309
Lysophosphatidylcholine	1,4		4,0	% (m/m)	05.P07.857
Nonpolar lipids	1,0		3,0	% (m/m)	05.P03.006
Tocopherol	0,21		0,30	% (m/m)	05.P07.142
Acid value	0,2		0,5		05.P03.002
Peroxide value	1,8		5,0		05.P05.120
Water	0,2		1,5	% (m/m)	05.P10.013
Toluene insolubles	0,00		0,05	% (m/m)	05.P08.001
Ethanol	0,1		0,2	% (m/m)	05.P05.049
Heavy metals	< 10		10	mg/kg	USP <231> method II
Arsenic	< 0,015		0,15	mg/kg	USP <232>/ USP <233>
Lead	< 0,015		0,10	mg/kg	USP <232>/ USP <233>
Appearance	yellowish, waxy	yellowish, waxy			05.P06.155

.../2



Lipoid

PHOSPHOLIPID GmbH Member of the Lipoid Group

ANALYTICAL DATA

AN3019364/0
- 2 -

PHOSPHOLIPON 80 G

Batch 228154-3180044

Sample for laboratory use only

Köln, September 26, 2018

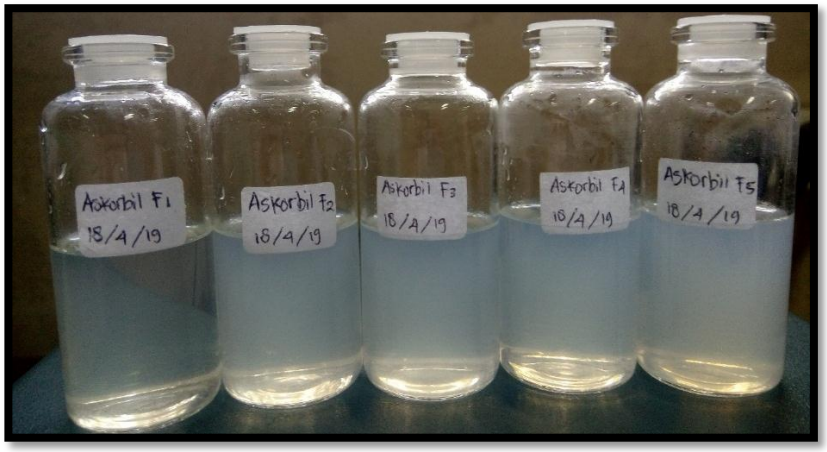
Dr. Thomas Jozek
Head of Quality Control

Ahmet Tengerdek
Quality Assurance

PHOSPHOLIPID GmbH · Nattermannallee 1 · D-50829 Köln · Tel. 0221-98746-0 · Fax 0221-98746-216

Lampiran 3. Nanofitosom Askorbil Palmitat Sebelum Disonikasi

Lampiran 4. Nanofitosom Askorbil Palmitat Setelah Disonikasi



Lampiran 5. Nanofitosom Askorbil Palmitat Setelah Uji Stabilitas

Lampiran 6. Hasil Ukuran Partikel F1

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name: Nanofitosom Ascorbil Palmitat F1 1
SOP Name: mansettings.nano
General Notes:

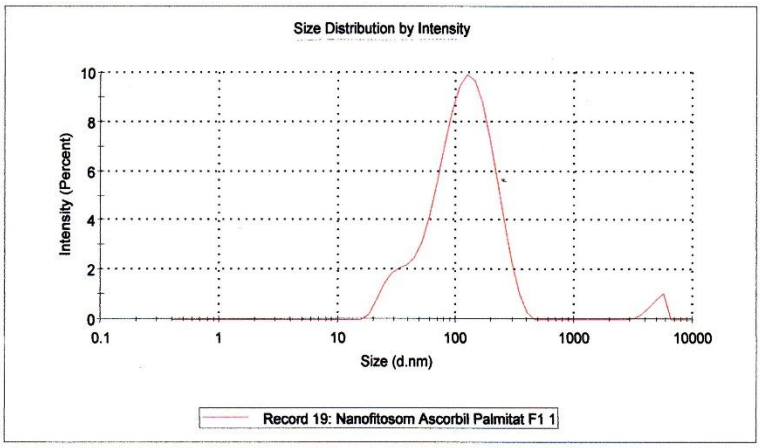
File Name:	NanofotosomMyricetin_2...	**Dispersant Name:**	Water
Record Number:	19	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,010	**Measurement Date and Time:**	Jumat, 26 April 2019 11.09.06

System

Temperature (°C):	25,0	**Duration Used (s):**	60
Count Rate (kcps):	435,1	**Measurement Position (mm):**	4,65
Cell Description:	Disposable sizing cuvette	**Attenuator:**	5

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	96,51	**Peak 1:**	125,4	97,5	69,41
PdI:	0,331	**Peak 2:**	4878	2,5	684,7
Intercept:	0,906	**Peak 3:**	0,000	0,0	0,000
Result quality	Good				



Lampiran 7. Hasil Ukuran Partikel F2

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name: Nanofitosom Ascorbil Palmitat F2 1
SOP Name: mansettings.nano
General Notes:

File Name: NanofotosomMyricetin_2...
Record Number: 22
Material RI: 1,52
Material Absorbtion: 0,010
Dispersant Name: Water
Dispersant RI: 1,330
Viscosity (cP): 0,8872
Measurement Date and Time: Jumat, 26 April 2019 11.19.45

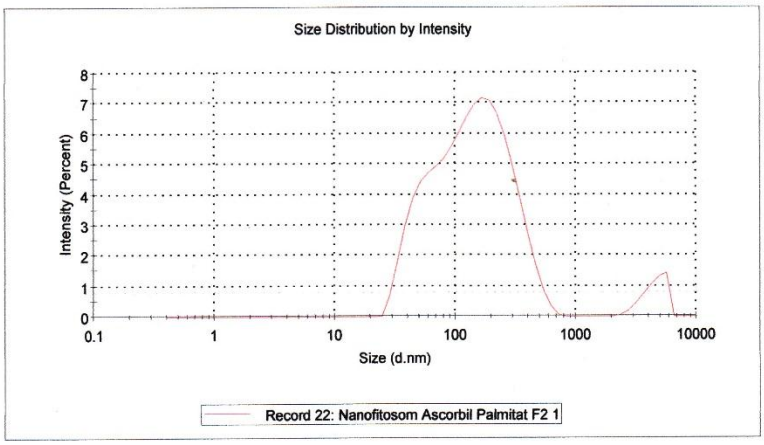
System

Temperature (°C): 25,0
Count Rate (kcps): 306,6
Cell Description: Disposable sizing cuvette
Duration Used (s): 60
Measurement Position (mm): 1,05
Attenuator: 4

Results

		Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm): 115,4	**Peak 1:**	162,0	94,8	111,8
PdI: 0,386	**Peak 2:**	4457	5,2	901,8
Intercept: 0,911	**Peak 3:**	0,000	0,0	0,000

Result quality Good



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Zetasizer Ver. 7.12
Serial Number : MAL1165275

File name: NANOPARTIKEL
Record Number: 22
25 Mei 2019 11.26.30

Lampiran 8. Hasil Ukuran Partikel F3

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name: Nanofitosom Ascorbil Palmitat F3 1

SOP Name: mansettings.nano

General Notes:

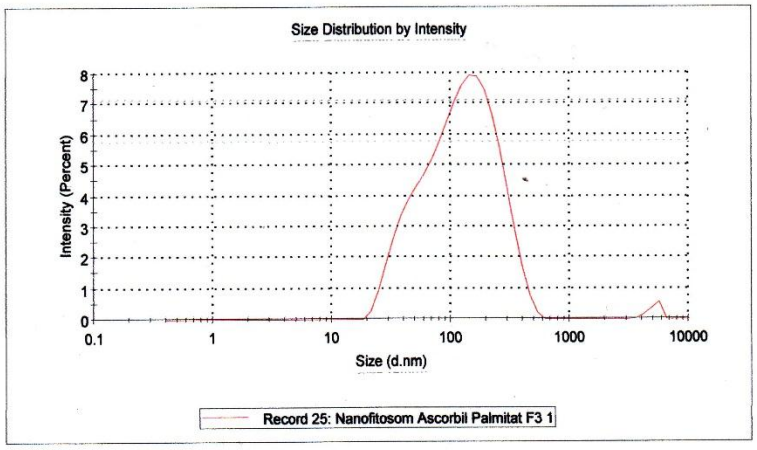
File Name:	NanofotosomMyricetin_2...	**Dispersant Name:**	Water
Record Number:	25	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,010	**Measurement Date and Time:**	Jumat, 26 April 2019 11.29.41

System

Temperature (°C):	25,0	**Duration Used (s):**	60
Count Rate (kcps):	440,7	**Measurement Position (mm):**	4,65
Cell Description:	Disposable sizing cuvette	**Attenuator:**	5

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	96,09	**Peak 1:**	142,5	98,9	93,16
PdI:	0,372	**Peak 2:**	5049	1,1	581,8
Intercept:	0,905	**Peak 3:**	0,000	0,0	0,000
Result quality	Good				



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Zetasizer Ver. 7.12
Serial Number : MAL1165275

File name: NANOPARTIKEL
Record Number: 25
25 Mei 2019 11.29.44

Lampiran 9. Hasil Ukuran Partikel F4

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name: Nanofitosom Ascorbil Palmitat F4 1
SOP Name: mansettings.nano
General Notes:

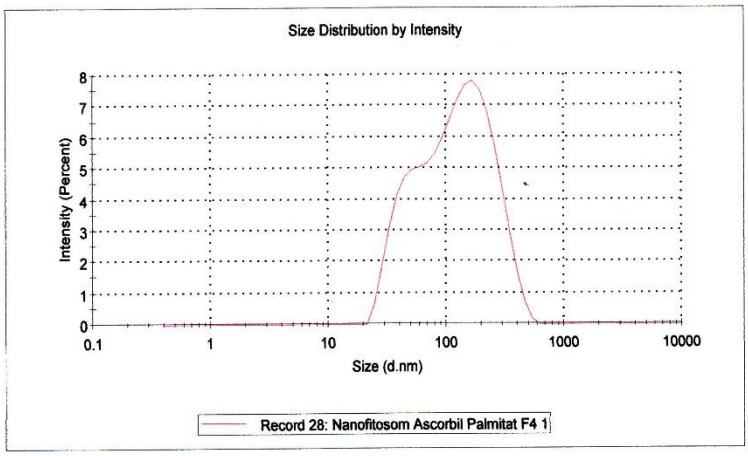
File Name:	NanofotosomMyricetin_2...	**Dispersant Name:**	Water
Record Number:	28	**Dispersant RI:**	1,330
Material RI:	1,52	**Viscosity (cP):**	0,8872
Material Absorbtion:	0,010	**Measurement Date and Time:**	Jumat, 26 April 2019 11.39.34

System

Temperature (°C):	25,0	**Duration Used (s):**	60
Count Rate (kcps):	250,7	**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):	92,18	**Peak 1:**	140,8	100,0	93,54
PdI:	0,289	**Peak 2:**	0,000	0,0	0,000
Intercept:	0,925	**Peak 3:**	0,000	0,0	0,000
Result quality	Good				



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Zetasizer Ver. 7.12
Serial Number : MAL1165275

File name: NANOPARTIKEL
Record Number: 28
25 Mei 2019 11.40.26

Lampiran 60. Hasil Ukuran Partikel F5

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name: Nanofitosom Ascorbil Palmitat F5 1
SOP Name: mansettings.nano
General Notes:

File Name: NanofotosomMyricetin_2...
Record Number: 31
Material RI: 1,52
Material Absorbtion: 0,010
Dispersant Name: Water
Dispersant RI: 1,330
Viscosity (cP): 0,8872
Measurement Date and Time: Jumat, 26 April 2019 11.50.38

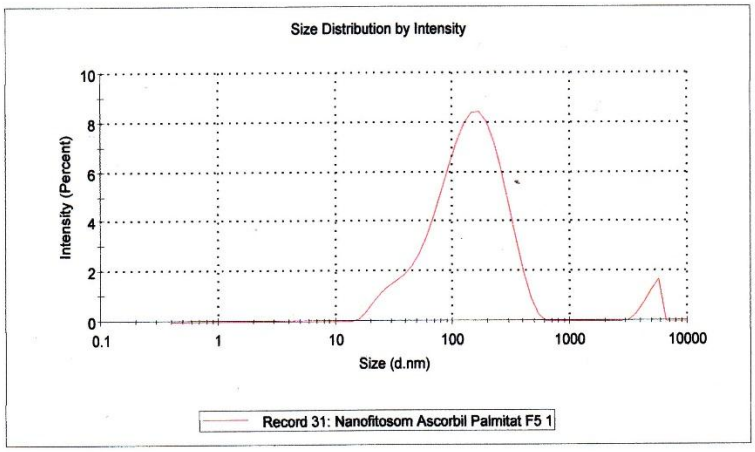
System

Temperature (°C): 25,0
Count Rate (kcps): 159,1
Cell Description: Disposable sizing cuvette
Duration Used (s): 80
Measurement Position (mm): 1,05
Attenuator: 3

Results

			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	115,1	**Peak 1:**	153,9	95,9	95,11
PdI:	0,394	**Peak 2:**	4885	4,1	681,8
Intercept:	0,923	**Peak 3:**	0,000	0,0	0,000

Result quality Good



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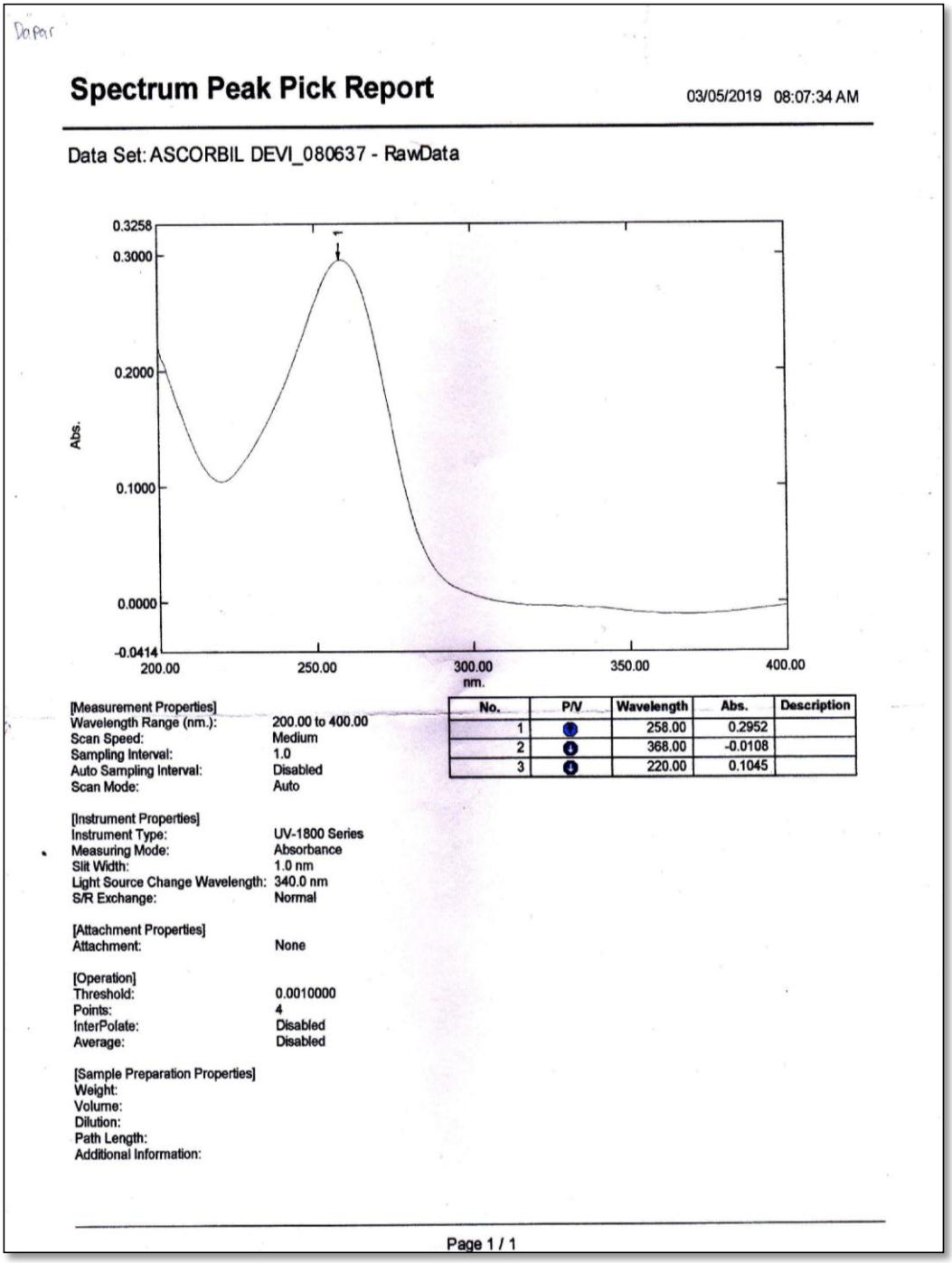
Zetasizer Ver. 7.12
Serial Number : MAL1165275

File name: NANOPARTIKEL
Record Number: 31
25 Mei 2019 11.42.17

Lampiran 11. Pembuatan Kurva Kalibrasi dan Verifikasi Metode

1. Penentuan Panjang Gelombang Maksimum

Lamda maksimum → 258 nm, dengan nilai serapan maksimum yaitu 0,2952



Dapat

Spectrum Peak Pick Report

03/05/2019 08:07:34 AM

Data Set: ASCORBIL DEVI_080637 - RawData

No.	P/V	Wavelength	Abs.	Description
1	P	258.00	0.2952	
2	V	368.00	-0.0108	
3	V	220.00	0.1045	

[Measurement Properties]
Wavelength Range (nm.): 200.00 to 400.00
Scan Speed: Medium
Sampling Interval: 1.0
Auto Sampling Interval: Disabled
Scan Mode: Auto

[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

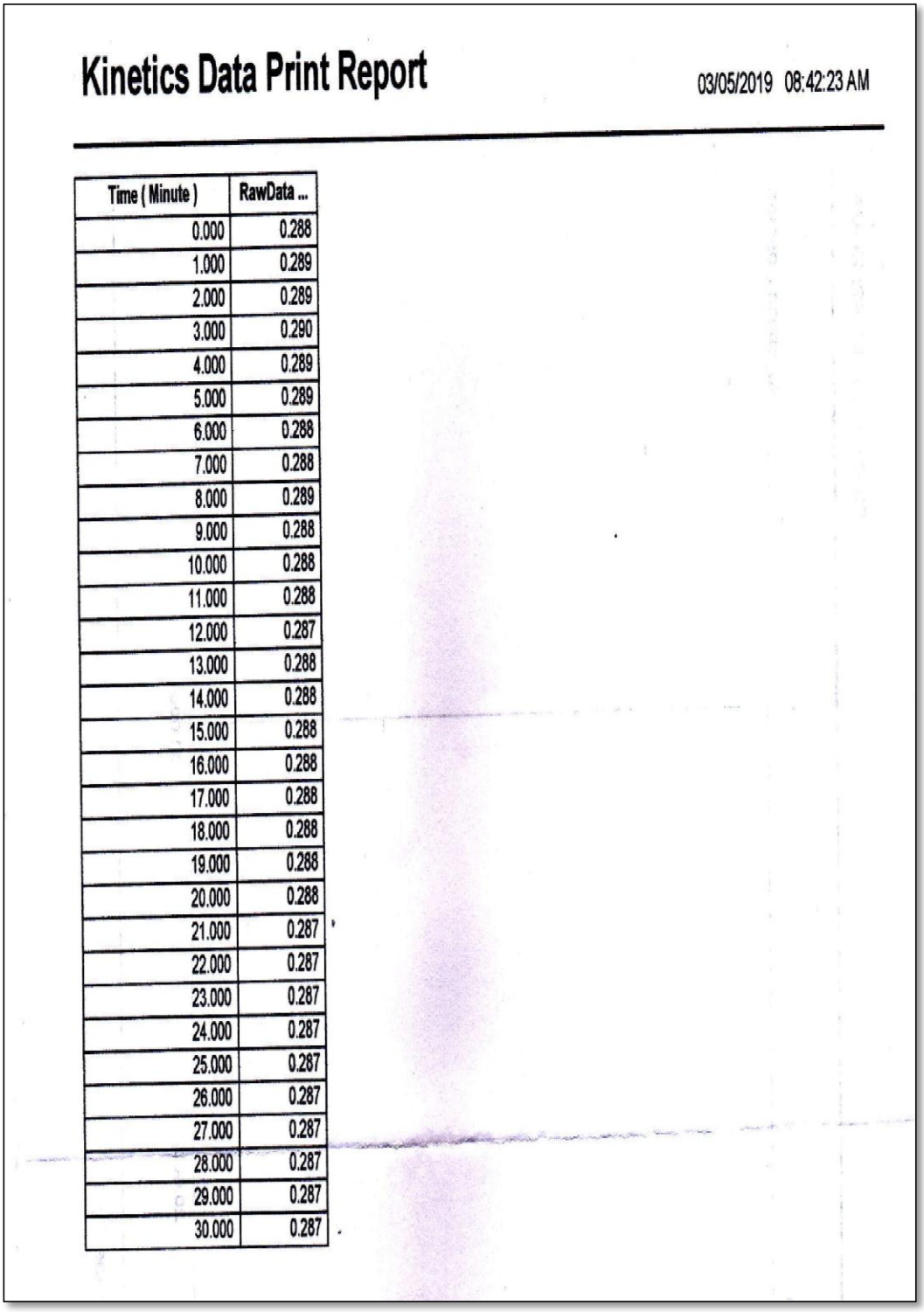
[Operation]
Threshold: 0.0010000
Points: 4
InterPolate: Disabled
Average: Disabled

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

Page 1 / 1

2. Penentuan *Operating Time*

Operating Time 21-30 menit dengan nilai serapan berturut-turut 0,287



Kinetics Data Print Report

03/05/2019 08:42:23 AM

Time (Minute)	RawData ...
0.000	0.288
1.000	0.289
2.000	0.289
3.000	0.290
4.000	0.289
5.000	0.289
6.000	0.288
7.000	0.288
8.000	0.289
9.000	0.288
10.000	0.288
11.000	0.288
12.000	0.287
13.000	0.288
14.000	0.288
15.000	0.288
16.000	0.288
17.000	0.288
18.000	0.288
19.000	0.288
20.000	0.288
21.000	0.287
22.000	0.287
23.000	0.287
24.000	0.287
25.000	0.287
26.000	0.287
27.000	0.287
28.000	0.287
29.000	0.287
30.000	0.287

3. Tabel Kurva Baku

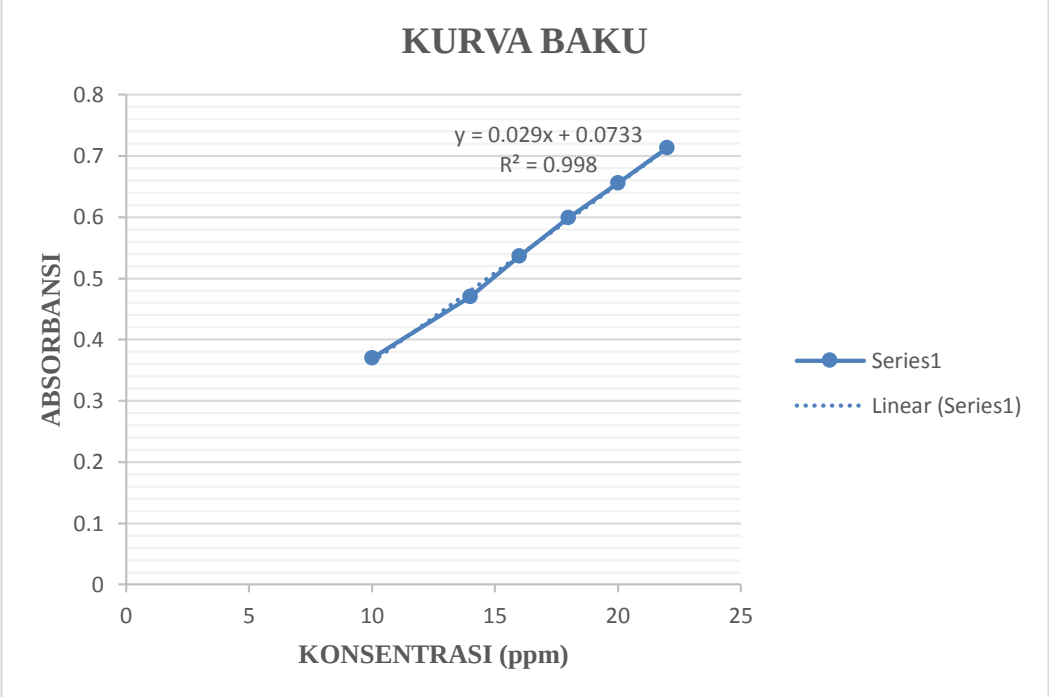
Larutan stok 100 ppm → 10 mg askorbil palmitat + 10 ml etanol 96% + dapar fosfat *p*H 7,4 ad 100 ml

Konsentrasi (ppm)	Absorbansi
10	0,370
14	0,470
16	0,536
18	0,599
20	0,656
22	0,713

a = 0,0733

b = 0,0290

r = 0,9990



- **Pembuatan larutan induk askorbil palmitat dalam medium dapar fosfat pH 7,4**

  Berat Kertas kosong = 267,4 mg

  Berat kertas + bahan = 278,7 mg

  Berat kertas + sisa = 268,6 mg

Berat zat aktif = 278,7 mg - 268,6 mg
= 10,1 mg
Volume dapar *p*H 7,4 = 100 mL
Larutan stok = 10,1 mg / 100mL
= 100,1 mg/ 1000 mL
= 100,1 ppm

- **Kurva baku askorbil palmitat dalam media dapar *p*H 7,4**

  Larutan induk askorbil palmitat dibuat seri konsentrasi 10 ppm, 14 ppm, 16 ppm, 18 ppm, 20 ppm dan 22 ppm dalam 10 mL.

  - **Konsentrasi 10 ppm**

    V1 x C1 = V2 x C2
    V1 x 100 ppm = 10 mL x 10 ppm
    V1 = 1 mL

    Dipipet larutan induk askorbil palmitat 100 ppm sebanyak 1 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

  - **Konsentrasi 14 ppm**

    V1 x C1 = V2 x C2
    V1 x 100 ppm = 10 mL x 14 ppm
    V1 = 1,4 mL

    Dipipet larutan askorbil palmitat 100 ppm sebanyak 1,4 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

  - **Konsentrasi 16 ppm**

    V1 x C1 = V2 x C2
    V1 x 100 ppm = 10 mL x 16 ppm
    V1 = 1,6 mL

    Dipipet larutan askorbil palmitat 100 ppm sebanyak 1,6 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 18 ppm**

  V1 x C1 = V2 x C2

  V1 x 100 ppm = 10 mL x 18 ppm

  V1 = 1,8 mL

  Dipipet larutan askorbil palmitat 100 ppm sebanyak 1,8 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 20 ppm**

  V1 x C1 = V2 x C2

  V1 x 100 ppm = 10 mL x 20 ppm

  V1 = 2 mL

  Dipipet larutan askorbil palmitat 100 ppm sebanyak 2 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 22 ppm**

  V1 x C1 = V2 x C2

  V1 x 100 ppm = 10 mL x 22 ppm

  V1 = 2,6 mL

  Dipipet larutan askorbil palmitat 100 ppm sebanyak 2,2 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

A. Linearitas

Kosentrasi (ppm)	Absorbansi
10	0,370
14	0,470
16	0,536
18	0,599
20	0,656
22	0,713

a = 0,0733

b = 0,0290

r = 0,9990

y = a + bx

y = 0,0733 + 0,0290 x

Hasil linearitas diperoleh r = 0,9990, sehingga dapat disimpulkan bahwa data linear.

B. LOD dan LOQ

Kosentrasi (ppm)	Absorbansi (y)	y'	y-y'	$\|y-y'\|^2$
10	0,370	0,3637	0,0063	0,0000395
14	0,470	0,4799	-0,0099	0,0000978
16	0,536	0,5380	-0,0020	0,0000004
18	0,599	0,5961	0,0029	0,0000087
20	0,656	0,6541	0,0019	0,0000034
22	0,713	0,7122	0,0008	0,0000006
Jumlah total $(\sum\|y-y'\|)^2$ = 0,000150				

Nilai y' diperoleh dari subsitusi kosentrasi dalam persamaan y= 0,0733+0,0290 x dengan x adalah kosentrasi (ppm) dan y adalah serapan (y')

1. Y= 0,0733 + 0,0290 x

   Y= 0,0733 + 0,0290 x 10

   Y= 0,3637

2. Y= 0,0733 + 0,0290 x

   Y= 0,0733 + 0,0290 x 14

   Y= 0,4799
3. Y= 0,0733 + 0,0290 x

   Y= 0,0733 + 0,0290 x 16

   Y= 0,5380
4. Y= 0,0733 + 0,0290 x

   Y= 0,0733 + 0,0290 x 18

   Y= 0,5961
5. Y= 0,0733 + 0,0290 x

   Y= 0,0733 + 0,0290 x 20

   Y= 0,6541
6. Y= 0,0733 + 0,0290 x

   Y= 0,0733 + 0,0290 x 22

   Y= 0,7122

- Sx/y $= \sqrt{\frac{(\sum|y-y'|)2}{N-2}}$

  Sx/y = simpangan baku residual

  N = jumlah data

  $(\sum|y\text{-}y'|)^2$ = jumlah kuadrat total residual

  Sx/y $= \sqrt{\frac{0,000150}{6-2}} = 0,0061$

- LOD = 3,3 X $\frac{\frac{Sx}{y}}{b}$

  LOD = 3,3 X $\frac{0,0061}{0,0290}$

  LOD = 0,6968 ppm

  Y= 0,0733 + 0,0290 x

  Y= 0,0733 + 0,0290 (0,6968)

  Y= 0,0733 + 0,0202

  Serapan LOD = 0,0935

- LOQ = 10 x $\frac{\frac{Sx}{y}}{b}$

  LOQ = 10 x $\frac{0,0061}{0,0290}$

  LOQ = 2,1114 ppm

  Y= 0,0733 + 0,0290 x

  Y= 0,0733 + 0,0290 (2,1114)

  Y= 0,0733 + 0,0612

  Serapan LOQ = 0,1345

Lampiran 12. Penetapan Ukuran Partikel Sebelum Penyimpanan

Formula	Ukuran Partikel	Rata-rata ± SD	Indeks Polidisperitas	Rata-rata ± SD	Zeta potensial ± SD
1	96,510	95,943 ±	0,331	0,332 ±	
	94,520	1,241	0,360	0,028	
	96,800		0,304		
2	115,400	115,833 ±	0,386	0,386 ±	
	117,500	1,498	0,387	0,001	
	114,600		0,386		
3	96,090	96,860 ±	0,372	0,376 ±	
	97,870	0,914	0,378	0,003	
	96,620		0,378		
4	92,180	92,710 ±	0,289	0,284 ±	-5,27
	92,770	0,503	0,283	0,004	-4,78 ± 0,261
	93,180		0,281		-5,18
5	115,100	112,567 ±	0,394	0,388 ±	
	111,100	2,203	0,399	0,014	
	111,500		0,372		

Lampiran 13. Perhitungan Efisiensi Penjerapan

Formula	Replikasi	Absorbansi	Rata-rata absorbansi	% EE
	1	0,778		
1	2	0,781	0,779	75,67
	3	0,777		
	1	0,669		
2	2	0,665	0,667	79,53
	3	0,667		
	1	0,605		
3	2	0,603	0,605	81,67
	3	0,607		
	1	0,497		
4	2	0,501	0,501	85,25
	3	0,504		
	1	0,549		
5	2	0,551	0,551	83,53
	3	0,553		

Regresi linier :

a = 0,0733

b = 0,0290

r = 0,9990

Rumus Efisiensi Penjerapan :

$$\% \text{ EE} = \frac{TD-FD}{TD}\ x\ 100\%$$

Keterangan :

TD : total jumlah fenolat yang terdapat pada formula

FD : total senyawa fenolat yang terdeteksi pada supernatant (tidak terjerap)

- Larutan induk→ 10 mg askorbil palmitat, supernatan atau askorbil yang tidak terjerap dicukupkan volumenya menjadi 10 mL sehingga konsentrasi menjadi 1000 ppm.

PERHITUNGAN :

FORMULA 1

- y = a + bx

  0,779 = 0,0733 + 0,0290x

  x = $\frac{0,779-0,0733}{0,0290}$

  x = 24,33 ppm

- Jumlah Fisetin yang tidak terjerap = 24,33 ppm x faktor pengernceran

  = 24,33 ppm x 10

  = 243,3 ppm

- % EE = $\frac{1000\ ppm-243,3\ ppm}{1000\ ppm}$ x 100 %

  = 75,67 %

FORMULA 2

- y = a + bx

  0,667 = 0,0733 + 0,0290x

  x = $\frac{0,667-0,0733}{0,0290}$

  x = 20,47 ppm

- Jumlah Fisetin yang tidak terjerap = 20,47 ppm x faktor pengernceran

  = 20,47 ppm x 10

  = 204,72 ppm

- % EE = $\frac{1000\ ppm-204,72\ ppm}{1000\ ppm}$ x 100 %

  = 79,53 %

FORMULA 3

- y = a + bx

  0,605 = 0,0733 + 0,0290x

  x = $\frac{0,605-0,0733}{0,0290}$

  x = 18,33 ppm

- Jumlah Fisetin yang tidak terjerap = 18,33 ppm x faktor pengernceran
  = 18,33 ppm x 10
  = 183,30 ppm
- % EE = $\frac{1000\ ppm - 183{,}30\ ppm}{1000\ ppm}$ x 100 %
  = 81,67 %

FORMULA 4

- y = a + bx
  0,501 = 0,0733 + 0,0290x
  x = $\frac{0{,}501 - 0{,}0733}{0{,}0290}$
  x = 14,75 ppm

- Jumlah Fisetin yang tidak terjerap = 14,75 ppm x faktor pengernceran
  = 14,75 ppm x 10
  = 147,50 ppm
- % EE = $\frac{1000\ ppm - 147{,}50\ ppm}{1000\ ppm}$ x 100 %
  = 85,25 %

FORMULA 5

- y = a + bx
  0,551 = 0,0733 + 0,0290x
  x = $\frac{0{,}551 - 0{,}0733}{0{,}0290}$
  x = 16,47 ppm

- Jumlah Fisetin yang tidak terjerap = 16,47 ppm x faktor pengernceran
  = 16,47 ppm x 10
  = 164,70 ppm
- % EE = $\frac{1000\ ppm - 164{,}70\ ppm}{1000\ ppm}$ x 100 %
  = 83,53 %

Lampiran 14. Uji Stabilitas Selama 3 minggu

A. Pembentukan Endapan

Formula	Minggu Ke 1	Minggu Ke 2	Minggu Ke 3
1	Tidak ada endapan	Ada endapan	Ada endapan
2	Tidak ada endapan	Ada endapan	Ada endapan
3	Tidak ada endapan	Ada endapan	Ada endapan
4	Tidak ada endapan	Tidak Ada endapan	Ada endapan
5	Tidak ada endapan	Ada endapan	Ada endapan

B. Ukuran Partikel Dan Distribusi Partikel Setelah Penyimpanan

Formula	Ukuran Partikel (nm)		Indeks Polidispersitas	
F4	Sebelum	Sesudah	Sebelum	Sesudah
	96,860	1105	0,376	0,643

Lampiran 15. Potensial Zeta F4 Setelah Penyimpanan

Formula	Potensial Zeta (mV)	SD
F4	-13,040 ± 0,658	

Lampiran 16. Hasil ukuran Partikel F4 Setelah Penyimpanan

Size Distribution Report by Number

v2.2

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Sample Details

Sample Name: F4 Ascorbil Palmitat 1
SOP Name: mansettings.nano
General Notes:

File Name: Vilza Dwiki 2019.dts
Record Number: 11
Material RI: 1.52
Material Absorbtion: 0.010
Dispersant Name: Water
Dispersant RI: 1.330
Viscosity (cP): 0.8872
Measurement Date and Time: Tuesday, May 21, 2019 11...

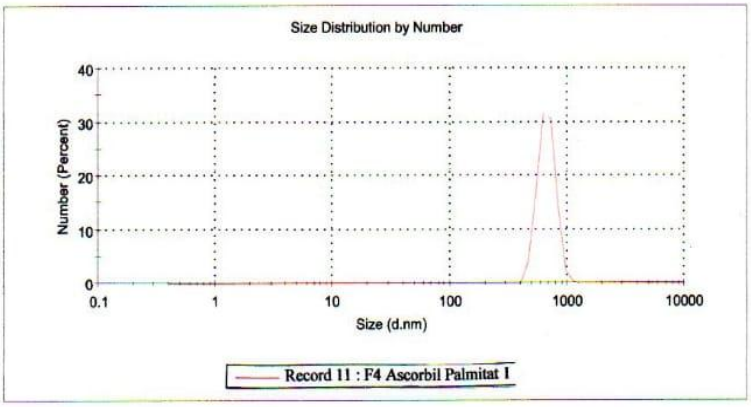
System

Temperature (°C): 25.0
Count Rate (kcps): 136.8
Cell Description: Disposable sizing cuvette
Duration Used (s): 80
Measurement Position (mm): 4.65
Attenuator: 7

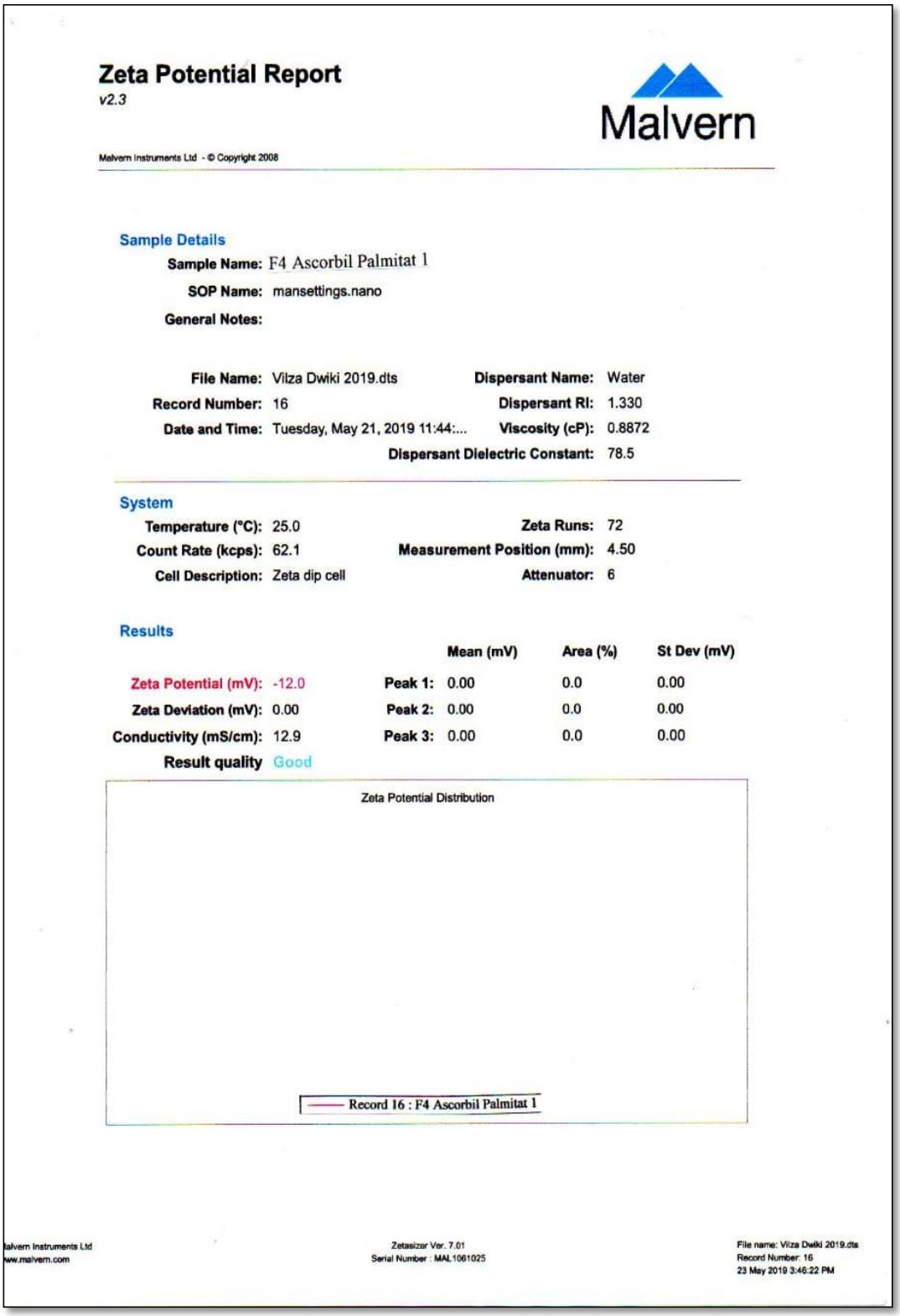
Results

			Size (d.n...	% Number:	St Dev (d.n...
Z-Average (d.nm):	1129	Peak 1:	663.6	100.0	112.9
PdI:	0.663	Peak 2:	0.000	0.0	0.000
Intercept:	0.947	Peak 3:	0.000	0.0	0.000

Result quality Good



Lampiran 17. Hasil Potensial Zeta F4 Setelah Penyimpanan



Zeta Potential Report
v2.3

Malvern

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Sample Details

Sample Name: F4 Ascorbil Palmitat 1
SOP Name: mansettings.nano
General Notes:

File Name: Vilza Dwiki 2019.dts
Record Number: 16
Date and Time: Tuesday, May 21, 2019 11:44:...
Dispersant Name: Water
Dispersant RI: 1.330
Viscosity (cP): 0.8872
Dispersant Dielectric Constant: 78.5

System

Temperature (°C): 25.0
Count Rate (kcps): 62.1
Cell Description: Zeta dip cell
Zeta Runs: 72
Measurement Position (mm): 4.50
Attenuator: 6

Results

		Mean (mV)	Area (%)	St Dev (mV)
Zeta Potential (mV): -12.0	Peak 1:	0.00	0.0	0.00
Zeta Deviation (mV): 0.00	Peak 2:	0.00	0.0	0.00
Conductivity (mS/cm): 12.9	Peak 3:	0.00	0.0	0.00

Result quality Good

Zeta Potential Distribution

Record 16 : F4 Ascorbil Palmitat 1

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Zetasizer Ver. 7.01
Serial Number : MAL1061025

File name: Vilza Dwiki 2019.dts
Record Number: 16
23 May 2019 3:46:22 PM

Lampiran 18. Perhitungan Formula

Diketahui:

- Kadar askorbil palmitat = 99 %
- Mol askorbil palmitat = 414,54 g/mol
- Mol fosfatidilkolin = 768 g/mol
- Mol kolesterol = 386,67 g/mol

- Kandungan askorbil palmitat dalam 10 mg serbuk

  Askorbil palmitat (mg) = 10 mg $x \frac{99}{100}$ = 9,9 mg
- Mol askorbil palmitat dalam 10 mg serbuk

  Mol askorbil palmitat (µmol) = $\frac{9{,}9 \text{ mg}}{414540 \text{ x } 10{-}6 \text{ µmol}}$ = 23,8819 µmol
- Fosfatidilkolin

1. **Formula 1:1**

   Maka, jumlah fosfatidilkolin yang dibutuhkan adalah sebesar 23,8819 µmol.

   Fosfatidilkolin yang ditimbang = 23,8819 µmol $x \frac{768000 \text{ mg}}{10{-}6 \text{ µmol}}$ = 18,34 mg
2. **Formula 1:2**

   Maka, jumlah fosfatidilkolin yang dibutuhkan adalah sebesar 47,7638 µmol.

   Fosfatidilkolin yang ditimbang = 47,7638 µmol $x \frac{768000 \text{ mg}}{10{-}6 \text{ µmol}}$ = 36,68 mg
3. **Formula 1:3**

   Maka, jumlah fosfatidilkolin yang dibutuhkan adalah sebesar 71,6457 µmol.

   Fosfatidilkolin yang ditimbang = 71,6457 µmol $x \frac{768000 \text{ mg}}{10{-}6 \text{ µmol}}$ = 55,02 mg

4. **Formula 1:4**

   Maka, jumlah fosfatidilkolin yang dibutuhkan adalah sebesar 95,5276 µmol.

   Fosfatidilkolin yang ditimbang = 95,5276 µmol $x \frac{768000 \text{ mg}}{10-6 \text{ µmol}}$ = 73,37 mg

5. **Formula 1:5**

   Maka, jumlah fosfatidilkolin yang dibutuhkan adalah sebesar 119,4095 µmol.

   Fosfatidilkolin yang ditimbang =119,4095 µmol $x \frac{768000 \text{ mg}}{10-6 \text{ µmol}}$ = 91,71 mg

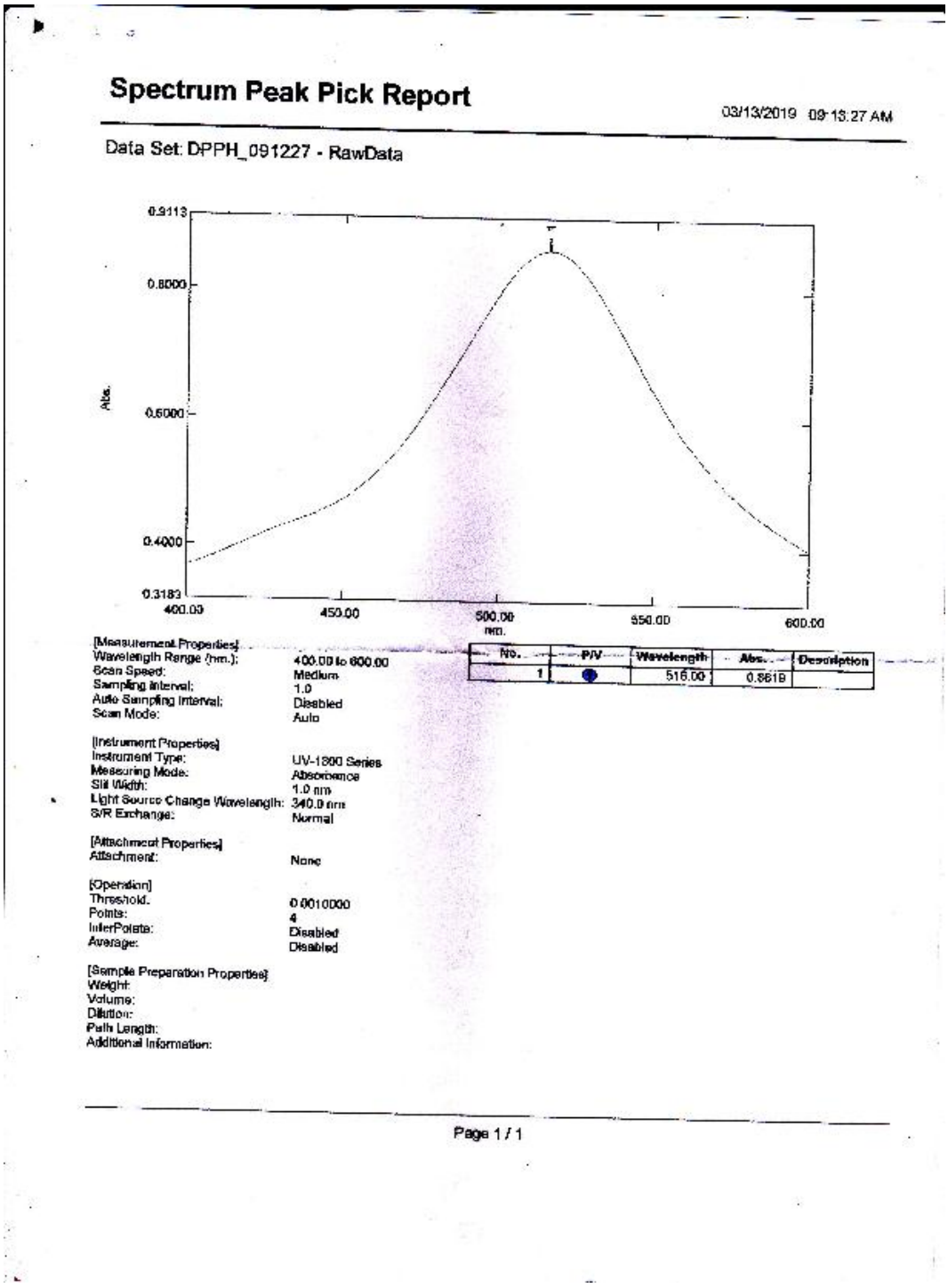
- Kolesterol

  Perbandingan zat aktif : kolesterol → 1:0,2. Maka jumlah kolesterol yang dibutuhkan adalah sebesar 4,7764 µmol.

  Kolesterol yang ditimbang = 4,7764 µmol $x \frac{386670 \text{ mg}}{10-6 \text{ µmol}}$ = 1,83 mg

Lampiran 19. Penetuan Panjang Gelombang Maksimum DPPH dan *Operating Time*

1. **Panjang Gelombang Maksimum DPPH**



Spectrum Peak Pick Report

03/13/2019 09:13:27 AM

Data Set: DPPH_091227 - RawData

No.	P/V	Wavelength	Abs.	Description
1	●	516.00	0.8618	

[Measurement Properties]
Wavelength Range (nm.): 400.00 to 600.00
Scan Speed: Medium
Sampling Interval: 1.0
Auto Sampling Interval: Disabled
Scan Mode: Auto

[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:
Volume:
Dilution:
Path Length:
Additional Information:

Page 1 / 1

2. Penentuan *Operating Time*

Operating time 34-36 menit dengan nilai serapan berturut-turut 0,738

Kinetics Data Print Report

03/13/2019 02:50:15 PM

Time (Minute)	RawData ...
0.000	0.765
1.000	0.763
2.000	0.763
3.000	0.762
4.000	0.762
5.000	0.761
6.000	0.760
7.000	0.759
8.000	0.758
9.000	0.757
10.000	0.756
11.000	0.755
12.000	0.754
13.000	0.753
14.000	0.752
15.000	0.751
16.000	0.750
17.000	0.750
18.000	0.749
19.000	0.748
20.000	0.748
21.000	0.747
22.000	0.748
23.000	0.745
24.000	0.744
25.000	0.744
26.000	0.743
27.000	0.742
28.000	0.742
29.000	0.741
30.000	0.741
31.000	0.740
32.000	0.740
33.000	0.739
34.000	0.738
35.000	0.738
36.000	0.738
37.000	0.737
38.000	0.736
39.000	0.736
40.000	0.735
41.000	0.735
42.000	0.735
43.000	0.734
44.000	0.734
45.000	0.733
46.000	0.733
47.000	0.732
48.000	0.732
49.000	0.732
50.000	0.731

Lampiran 20. Penimbangan DPPH dan pembuatan larutan stok DPPH

Serbuk DPPH untuk uji aktivitas antioksidan ditimbang sesuai hasil perhitungan berikut :

Penimbangan DPPH = BM DPPH x volume larutan x molaritas DPPH

= 394,32 g/mol x 0,100 liter x 0,0004 M

= 0,01578 gram

= 15,78 mg = 15,8 mg

Selanjutnya 15,8 mgserbuk DPPH dilarutkan dengan etanol p.a dalam labu takar 100 ml

Pembuatan larutan stok zat aktif askorbil palmitat

Berat kertas + Askorbil palmitat = 288,3 mg

Berat kertas + sisa = 278,3 mg

Berat zat aktif = 288,3 mg - 278,3 mg

= 10 mg

Pembuatan larutan stok dilakukan dengan cara ditimbang askorbil palmitat 10,4 mg dimasukkan ke dalam labu takar 100 mL kemudian ditambahkan etanol p.a sampai tanda batas, sehingga diperoleh konsentrasi 100 ppm.

Konsentrasi askorbil palmitat = 10 mg/100 mL

= 100 mg/1000 mL

= 100 ppm

Larutan askorbil palmitat konsentrasi 100 ppm diencerkan menjadi 6 seri pengenceran konsentrasi, yaitu 26 ppm, 34 ppm, 42 ppm, 50 ppm, 58 ppm, 66 ppm.

- **Konsentrasi 26 ppm**

  V1 x C1 = V2 x C2

  V1 x 100 ppm = 10 mL x 26 ppm

  V1 = 2,6 mL

  Dipipet larutan askorbil palmitat 100 ppm sebanyak 2,6 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 34 ppm**

  V1 x C1 = V2 x C2

  V1 x 100 ppm = 10 mL x 34 ppm

  V1 = 3,4 mL

  Dipipet larutan askorbil palmitat 100 ppm sebanyak 3,4 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 42 ppm**

  V1 x C1 = V2 x C2

  V1 x 100 ppm = 10 mL x 42 ppm

  V1 = 4,2 mL

  Dipipet larutan askorbil palmitat 100 ppm sebanyak 4,2 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 50 ppm**

  V1 x C1 = V2 x C2

  V1 x 100 ppm = 10 mL x 50 ppm

  V1 = 5 mL

  Dipipet larutan askorbil palmitat 100 ppm sebanyak 5 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 58 ppm**

  V1 x C1 = V2 x C2

  V1 x 100 ppm = 10 mL x 58 ppm

  V1 = 5,8 mL

  Dipipet larutan askorbil palmitat 100 ppm sebanyak 5,8 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 66 ppm**

  V1 x C1 = V2 x C2

  V1 x 100 ppm = 10 mL x 66 ppm

  V1 = 6,6 mL

  Dipipet larutan askorbil palmitat 100 ppm sebanyak 6,6 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

Pembuatan larutan stok nanofitosom askorbil palmitat (formula 4)

Pembuatan larutan stok nanofitosom dilakukan dengan cara dipipet larutan nanofitosom askorbil palmitat 5 mL dimasukkan ke dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas, sehingga diperoleh konsentrasi 250 ppm.

Konsentrasi nanofitosom askorbil palmitat = 10 mg/20 mL

= 500 mg/1000 mL

= 500 ppm

Larutan askorbil palmitat konsentrasi 500 ppm diencerkan menjadi 6 seri pengenceran konsentrasi, yaitu 250 ppm, 125 ppm, 62,5 ppm, 31,25 ppm, 15,63 ppm, 7,81 ppm.

- **Konsentrasi 250 ppm**

  V1 x C1 = V2 x C2

  V1 x 500 ppm = 10 mL x 250 ppm

  V1 = 5 mL

  Dipipet larutan nanofitosom askorbil palmitat 500 ppm sebanyak 5 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 125 ppm**

  V1 x C1 = V2 x C2

  V1 x 500 ppm = 10 mL x 125 ppm

  V1 = 2,5 mL

Dipipet larutan nanofitosom askorbil palmitat 250 ppm sebanyak 2,5 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 62,5 ppm**

  V1 x C1 = V2 x C2

  V1 x 500 ppm = 10 mL x 62,5 ppm

  V1 = 1,25 mL

  Dipipet larutan nanofitosom askorbil palmitat 125 ppm sebanyak 1,25 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 31,25 ppm**

  V1 x C1 = V2 x C2

  V1 x 500 ppm = 10 mL x 31,25 ppm

  V1 = 0,625 mL

  Dipipet larutan nanofitosom askorbil palmitat 62,5 ppm sebanyak 0,625 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 15,63 ppm**

  V1 x C1 = V2 x C2

  V1 x 500 ppm = 10 mL x 15,63 ppm

  V1 = 0,31 mL

  Dipipet larutan nanofitosom askorbil palmitat 31,25 ppm sebanyak 0,31 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

- **Konsentrasi 7,81 ppm**

  V1 x C1 = V2 x C2

  V1 x 500 ppm = 10 mL x 7,81 ppm

  V1 = 0,16 mL

  Dipipet larutan nanofitosom askorbil palmitat 15,63 ppm sebanyak 0,16 mL dimasukkan dalam labu takar 10 mL kemudian ditambahkan etanol p.a sampai tanda batas.

Lampiran 21. Perhitungan Aktivitas Antioksidan dan IC_{50}

A. Perhitungan aktivitas antioksidan Askorbil palmitat

Perhitungan presentase peredaman menggunakan rumus :

Peredaman (%) $= \frac{\text{absorbansi serapan larutan DPPH} - \text{absorbansi sampel}}{\text{absorbansi serapan larutan DPPH}}$ x 100 %

Peredaman replikasi 1

- 26 ppm $= \frac{0,862-0,653}{0,862}$ x 100 % = 24,25 %
- 34 ppm $= \frac{0,862-0,591}{0,862}$ x 100 % = 31,44 %
- 42 ppm $= \frac{0,862-0,520}{0,862}$ x 100 % = 39,68 %
- 50 ppm $= \frac{0,862-0,457}{0,862}$ x 100 % = 46,98 %
- 58 ppm $= \frac{0,862-0,389}{0,862}$ x 100 % = 54,87 %
- 66 ppm $= \frac{0,862-0,322}{0,862}$ x 100 % = 62,65 %

Peredaman replikasi 2

- 26 ppm $= \frac{0,862-0,647}{0,862}$ x 100 % = 24,94 %
- 34 ppm $= \frac{0,862-0,595}{0,862}$ x 100 % = 30,97 %
- 42 ppm $= \frac{0,862-0,523}{0,862}$ x 100 % = 39,33%
- 50 ppm $= \frac{0,862-0,454}{0,862}$ x 100 % = 47,33%
- 58 ppm $= \frac{0,862-0,387}{0,862}$ x 100 % = 55,10%
- 66 ppm $= \frac{0,862-0,326}{0,862}$ x 100 % = 62,18%

Peredaman replikasi 3

- 26 ppm $= \frac{0,862-0,650}{0,862}$ x 100 % = 24,59%
- 34 ppm $= \frac{0,862-0,592}{0,862}$ x 100 % = 31,32%
- 42 ppm $= \frac{0,862-0,524}{0,862}$ x 100 % = 39,21%
- 50 ppm $= \frac{0,862-0,456}{0,862}$ x 100 % = 47,10%
- 58 ppm $= \frac{0,862-0,384}{0,862}$ x 100 % = 55,45%
- 66 ppm $= \frac{0,862-0,323}{0,862}$ x 100 % = 62,53%

aktivitas antioksidan				
	konsentrasi	Replikasi	Absorbansi serapan larutan DPPH	absorbansi sampel
askorbil palmitat	26	Replikasi 1	O,862	0,653
	34			0,591
	42			0,520
	50			0,457
	58			0,389
	66			0,322
	26	Replikasi 2		0,647
	34			0,595
	42			0,523
	50			0,454
	58			0,387
	66			0,326
	26	Replikasi 3		0,650
	34			0,592
	42			0,524
	50			0,456
	58			0,384
	66			0,323

Hasil perhitungan regresi linier antara konsentrasi vs % peredaman

	konsentrasi	% peredaman	hasil regresilinier	IC_{50}	Rata-rata ± SD
askorbil palmitat	26	24,35	a = -0,9781 b = 0,9628 r = 0,9999	52,95	52,67 ± 0,55
	34	31,44			
	42	39,68			
	50	46,98			
	58	54,87			
	66	62,65			
	26	24,94	a = -0,4886 b = 0,9521 r = 0,9992	53,03	
	34	30,97			
	42	39,33			
	50	47,33			
	58	55,10			
	66	62,18			
	26	24,59	a = -2,9515 b = 1,0178 r = 0,9981	52,04	
	34	31,32			
	42	39,21			
	50	47,10			
	58	55,45			
	66	62,53			

Perhitungan IC_{50} Askorbil Palmitat

IC_{50} replikasi 1

Hasil perhitungan regresi linier antara konsentrasi vs % peredaman

a = -0,9781

b = 0,9628

r = 0,9999

sehingga didapatkan persamaan : y = a + bx

$$50 = -0{,}9781 + 0{,}9628\ x$$

$$x = 52{,}95$$

$$IC_{50} = 52{,}95 \text{ ppm}$$

IC_{50} replikasi 2

Hasil perhitungan regresi linier antara konsentrasi vs % peredaman

a = -0,4886

b = 0,9521

r = 0,9992

sehingga didapatkan persamaan : y = a + bx

$$50 = -0{,}4886 + 0{,}9521\ x$$

$$x = 53{,}03$$

$$IC_{50} = 53{,}03 \text{ ppm}$$

IC_{50} replikasi 3

Hasil perhitungan regresi linier antara konsentrasi vs % peredaman

a = -2,9515

b = 1,0178

r = 0,9981

sehingga didapatkan persamaan : y = a + bx

$$50 = -2{,}9515 + 1{,}0178\ x$$

$$x = 52.04$$

$$IC_{50} = 52{,}04 \text{ ppm}$$

B. Perhitungan aktivitas antioksidan dan IC_{50} nanofitosom askorbil palmitat (formula 4)

Perhitungan presentase peredaman menggunakan rumus :

Peredaman (%) $= \frac{\text{absorbansi serapan larutan DPPH} - \text{absorbansi sampel}}{\text{absorbansi serapan larutan DPPH}}$ x 100 %

Peredaman replikasi 1

- 7,81 ppm $= \frac{0,862-0,659}{0,862}$ x 100 % = 23,55 %
- 15,62 ppm $= \frac{0,862-0,574}{0,862}$ x 100 % = 33,41 %
- 31,25 ppm $= \frac{0,862-0,498}{0,862}$ x 100 % = 42,23 %
- 62,5 ppm $= \frac{0,862-0,412}{0,862}$ x 100 % = 52,2%
- 125 ppm $= \frac{0,862-0,337}{0,862}$ x 100 % = 60,90 %
- 250 ppm $= \frac{0,862-0,261}{0,862}$ x 100 % = 69,72 %

Peredaman replikasi 2

- 7,81 ppm $= \frac{0,862-0,661}{0,862}$ x 100 % = 23,32 %
- 15,62 ppm $= \frac{0,862-0,576}{0,862}$ x 100 % = 33,18 %
- 31,25 ppm $= \frac{0,862-0,497}{0,862}$ x 100 % = 42,34 %
- 62,5 ppm $= \frac{0,862-0,410}{0,862}$ x 100 % = 52,44 %
- 125ppm $= \frac{0,862-0,339}{0,862}$ x 100 % = 60,67 %
- 250 ppm $= \frac{0,862-0,259}{0,862}$ x 100 % = 69,95 %

Peredaman replikasi 3

- 7,81 ppm $= \frac{0,862-0,658}{0,862}$ x 100 % = 23,67 %
- 15,62 ppm $= \frac{0,862-0,573}{0,862}$ x 100 % = 33,53 %
- 31,25 ppm $= \frac{0,862-0,496}{0,862}$ x 100 % = 42,46 %
- 62,5 ppm $= \frac{0,862-0,413}{0,862}$ x 100 % = 52,09 %
- 125ppm $= \frac{0,862-0,336}{0,862}$ x 100 % = 61,02 %
- 250 ppm $= \frac{0,862-0,262}{0,862}$ x 100 % = 69,61 %

aktivitas antioksidan				
	konsentrasi	Replikasi	absorbansi serapan larutan DPPH	absorbansi sampel
Nanofitosom F4	7,81	Replikasi 1	O,862	0,659
	15,62			0,574
	31,25			0,498
	62,5			0,412
	125			0,337
	250			0,261
	7,81	Replikasi 2		0,661
	15,62			0,576
	31,25			0,497
	62,5			0,410
	125			0,339
	250			0,259
	7,81	Replikasi 3		0,658
	15,62			0,573
	31,25			0,496
	62,5			0,413
	125			0,336
	250			0,262

Hasil perhitungan regresi linier antara konsentrasi vs % peredaman

	Konsentrasi	% peredaman	hasil regresilinier	IC_{50}	Rata-rata ± SD
Nanofitosom F4	7,81	23,55	a = 33,2523 b = 0,1676 r = 0,8987	99,93	99,82 ± 0,16
	15,62	33,41			
	31,25	42,23			
	62,5	52,2			
	125	60,90			
	250	69,72			
	7,81	23,32	a = 33,1369 b = 0,1688 r = 0,8982	99,90	
	15,62	33,18			
	31,25	42,34			
	62,5	52,44			
	125	60,67			
	250	69,95			
	7,81	23,67	a = 33,3899 b = 0,1667 r = 0,8978	99,64	
	15,62	33,53			
	31,25	42,46			
	62,5	52,09			
	125	61,02			
	250	69,61			

Perhitungan IC_{50} Askorbil Palmitat

IC_{50} replikasi 1

Hasil perhitungan regresi linier antara konsentrasi vs % peredaman

a = 33,2523

b = 0,1676

r = 0,8987

sehingga didapatkan persamaan : y = a + bx

$$50 = 33{,}2523 + 0{,}1676\ x$$

$$x = 99{,}93$$

$$IC_{50} = 99{,}93 \text{ ppm}$$

IC_{50} replikasi 2

Hasil perhitungan regresi linier antara konsentrasi vs % peredaman

a = 33,1369

b = 0,1688

r = 0,8982

sehingga didapatkan persamaan : y = a + bx

$$50 = 33{,}1369 + 0{,}1688\ x$$

$$x = 99{,}90$$

$$IC_{50} = 99{,}90 \text{ ppm}$$

IC_{50} replikasi 3

Hasil perhitungan regresi linier antara konsentrasi vs % peredaman

a = 33,3899

b = 0,1667

r = 0,8978

sehingga didapatkan persamaan : y = a + bx

$$50 = 33{,}3899 + 0{,}1667\ x$$

$$x = 99{,}64$$

$$IC_{50} = 99{,}64 \text{ ppm}$$

Lampiran 22. Pengujian Aktivitas Antioksidan Zat Pembawa Nanofitosom

Pengujian aktivitas antioksidan zat pembawa nanofitosom dilakukan pembacaan pada 3 seri konsentrasi dandiamati kestabilan absorbansi yang diperoleh.

konsentrasi	Replikasi	Absorbansi	Rata-rata
250	1	1,051	1,051
	2	1,052	
	3	1,052	
125	1	1,050	1,051
	2	1,051	
	3	1,052	
62,5	1	1,051	1,051
	2	1,052	
	3	1,051	