

Lampiran 1. Pernyataan Keaslian Tulisan**PERNYATAAN KEASLIAN TULISAN**

Saya yang bertanda tangan di bawah ini:

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Menyatakan dengan sebenarnya bahwa Tugas Akhir yang saya tulis ini benar-benar hasil karya sendiri, bukan merupakan pengambil-alihan tulisan atau pikiran orang lain yang saya aku sebagai tulisan atau pikiran saya sendiri. Apabila di kemudian hari dapat dibuktikan bahwa Tugas Akhir ini adalah hasil jiplakan, maka saya bersedia menerima sanksi atas perbuatan tersebut.

Malang, 20 Agustus 2016

Yang membuat pernyataan,

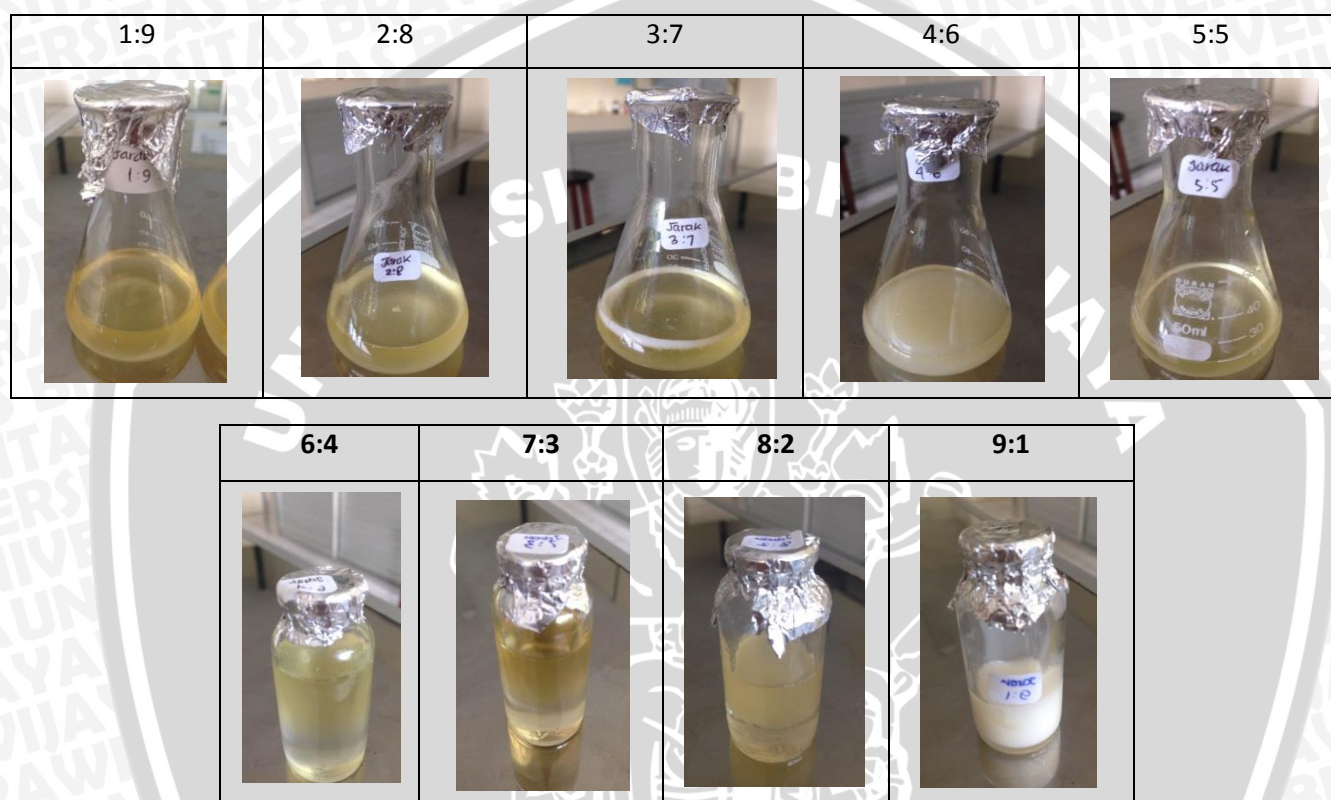
(Arsy Arundina)

NIM. 125070500111028

LAMPIRAN 2. Pemeriksaan bahan

Bahan	Jenis pemeriksaan	Spesifikasi	Hasil	Kesesuaian
Alfa tokoferol Asetat	Organoleptik	Kuning muda, kental, tidak berbau	Kuning muda, kental, tidak berbau	Sesuai
	Kelarutan	Mudah larut dalam etanol, kloroform	larut dalam etanol dan kloroform	Sesuai
	Panjang gelombang	286 nm dalam etanol	286 nm dalam etanol	Sesuai
Minyak bunga matahari	Organoleptik	Minyak bunga matahari berwarna kuning terang, cair, dan jernih, serta tidak berasa	berwarna kuning terang, cair, dan jernih, serta tidak berasa	Sesuai
Minyak jarak	Organoleptik	Minyak jarak hampir tidak berwarna atau berwarna kuning pucat, kental, sedikit beraroma dan tidak berasa pada awalnya tetapi setelah itu terasa sedikit tajam	Berwarna kuning, kental, sedikit beraroma	Sesuai
Span80	Organoleptik	Cairan kental berwarna kuning	Cairan kental berwarna kuning	Sesuai

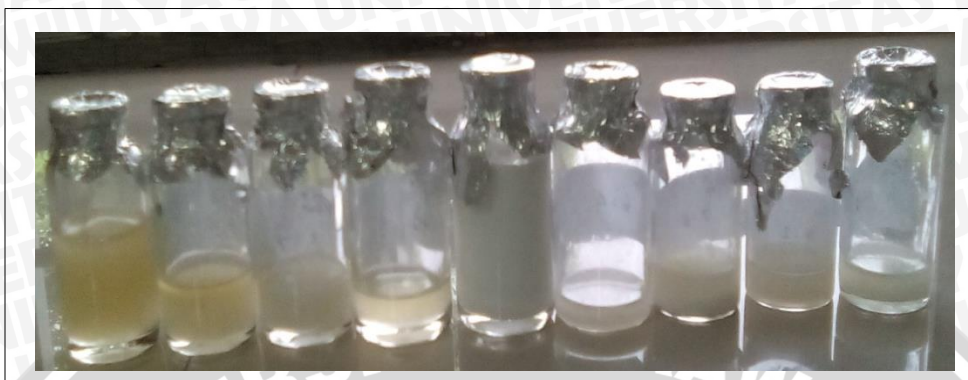
Lampiran 3. Hasil Optimasi Formula Nanoemulsi Alfa-tokoferol Asetat



Gambar 2.1 Formula Nanoemulsi Alfa-tokoferol Asetat minyak bunga matahari dengan kosurfaktan gliserin (HLB 8)



Gambar 2.2 Formula Nanoemulsi Alfa-tokoferol Asetat minyak biji jarak dengan kosurfaktan gliserin



Gambar 2.3 Formula Nanoemulsi Alfa-tokoferol Asetat minyak biji bunga matahari dengan kosurfaktan PEG 400

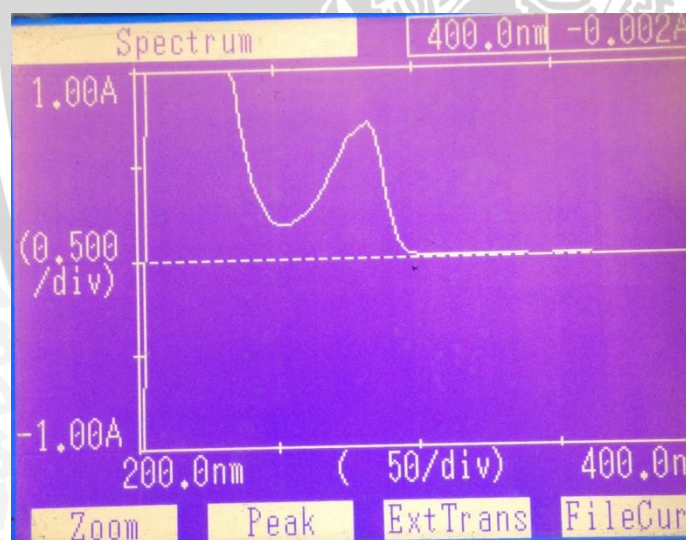
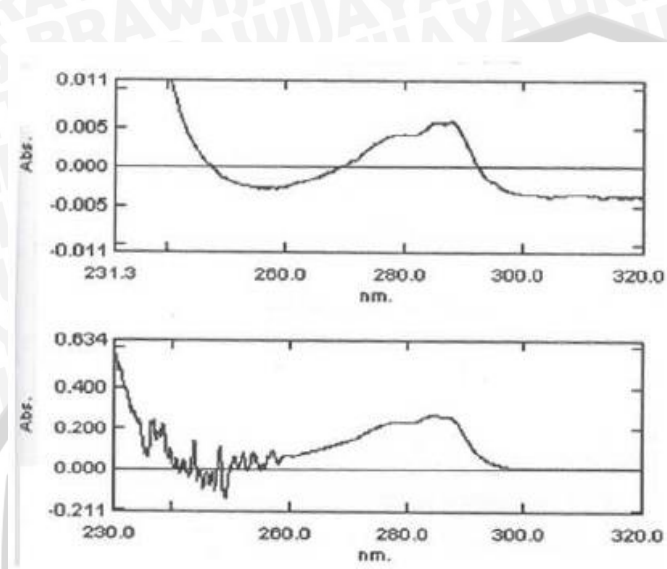


Gambar 2.4 Formula Nanoemulsi Alfa-tokoferol Asetat minyak biji jarak dengan kosurfaktan PEG 400

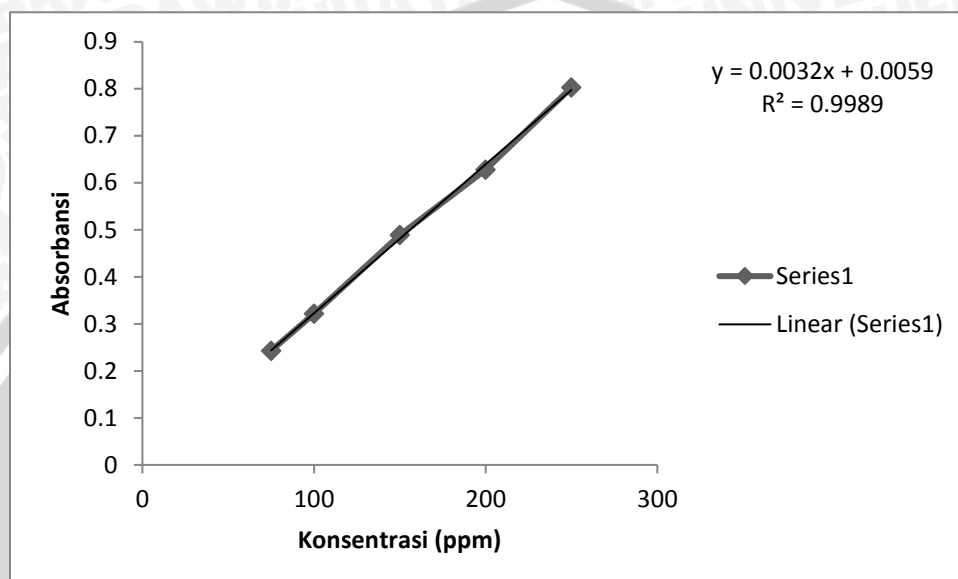


Gambar 2.5 Formula Nanoemulsi Alfa-tokoferol Asetat minyak biji bunga matahari dengan kosurfaktan polietilen glikol

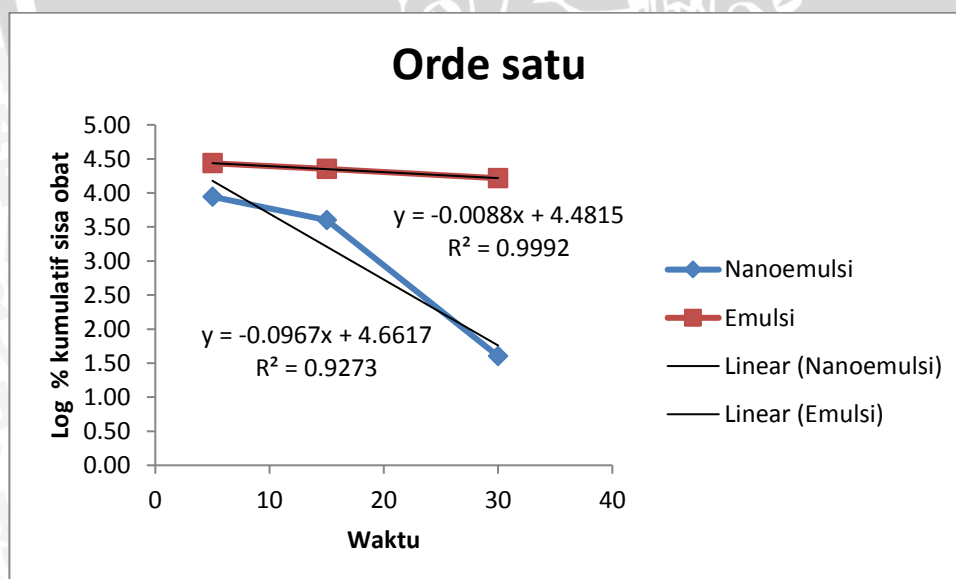
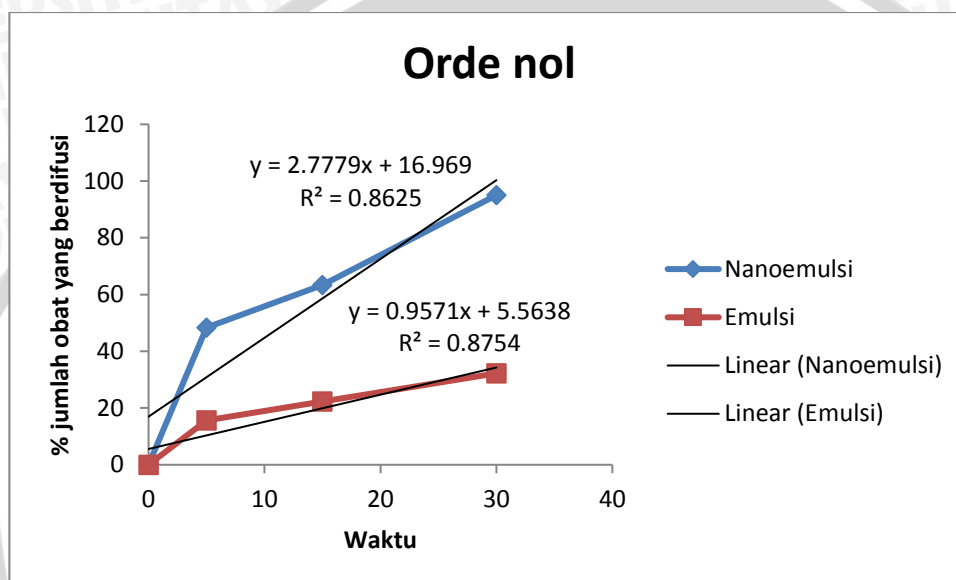
**Lampiran 4. Penentuan Panjang Gelombang Maksimum Alfa-Tokoferol Asetat
Dalam Ethanol 96%**



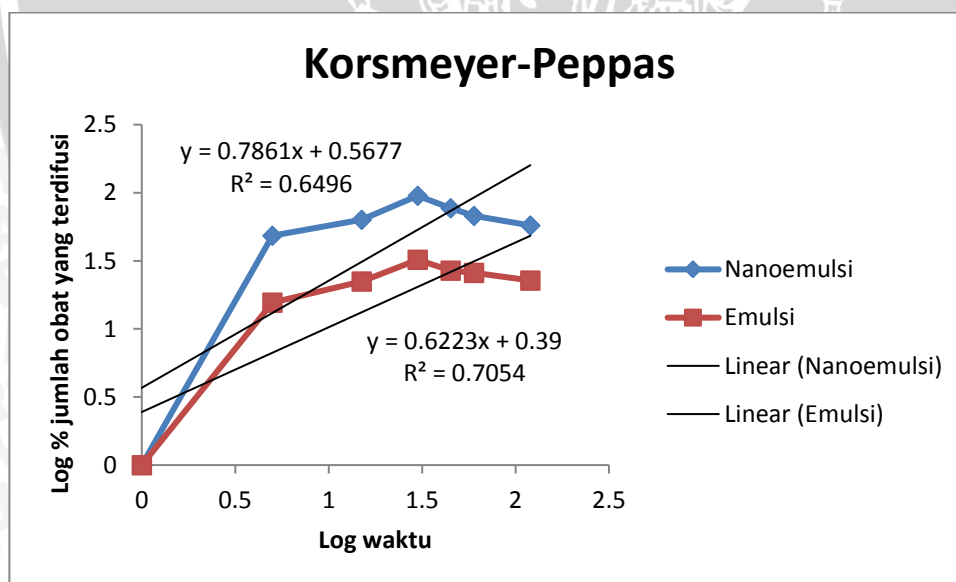
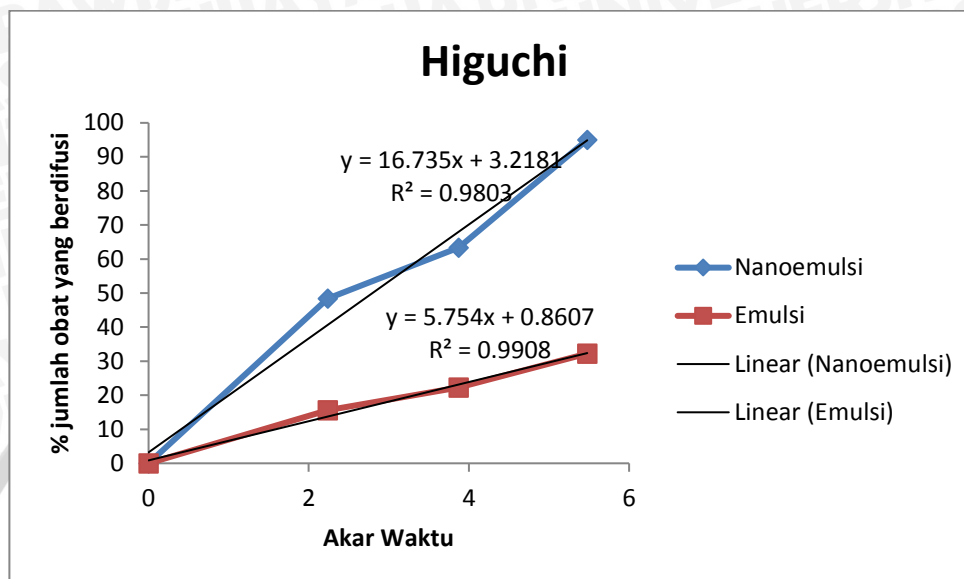
Lampiran 5. Kurva kalibrasi alfa-tokoferol asetat dalam ethanol 96% dan buffer fosfat



Lampiran 6. Jumlah Persentase Alfa-Tokoferol yang Berdifusi Per Satuan Waktu menurut Orde Reaksi: A) Orde Nol; B) Orde Satu; C) Higuchi; D) Korsmeyer-Pepper



(Lanjutan)



Lampiran 7. Pengukuran Distribusi Ukuran Globul Nanoemulsi Replikasi 1

Size Distribution Report by Intensity

v2.2



Sample Details

Sample Name: Alfa Tokoferol 2 : 8 Replikasi 1

SOP Name: mansettings.nano

General Notes:

File Name: Alpha tocopherol 2016.dts	Dispersant Name: Water
Record Number: 25	Dispersant RI: 1.330
Material RI: 1.33	Viscosity (cP): 0.8872
Material Absorbance: 0.002	Measurement Date and Time: Monday, May 30, 2016 10:...

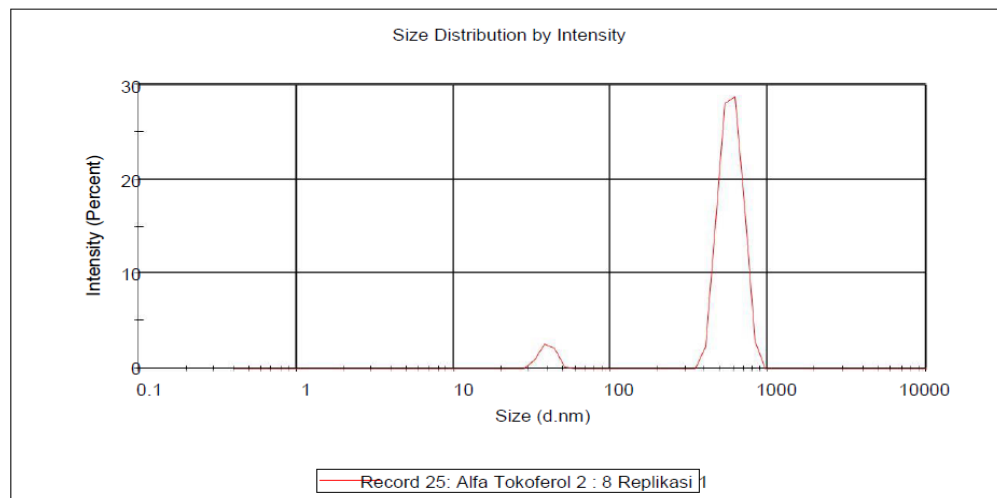
System

Temperature (°C): 25.0	Duration Used (s): 80
Count Rate (kcps): 177.2	Measurement Position (mm): 1.25
Cell Description: Disposable sizing cuvette	Attenuator: 9

Results

	Size (d.nm...)	% Intensity:	St Dev (d.n...
Z-Average (d.nm): 932.0	Peak 1: 582.7	94.0	96.34
PdI: 0.610	Peak 2: 39.60	6.0	4.443
Intercept: 0.852	Peak 3: 0.000	0.0	0.000

Result quality **Refer to quality report**



Lampiran 8. Pengukuran Distribusi Ukuran Globul Nanoemulsi Replikasi 2

Size Distribution Report by Intensity

v2.2



Sample Details

Sample Name: Alfa Tokoferol 2 : 8 Replikasi 2

SOP Name: mansettings.nano

General Notes:

File Name: Alpha tocopherol 2016.dts Dispersant Name: Water

Record Number: 27

Dispersant RI: 1.330

Material RI: 1.33

Viscosity (cP): 0.8872

Material Absorbtion: 0.002

Measurement Date and Time: Monday, May 30, 2016 10:...

System

Temperature (°C): 25.0

Duration Used (s): 80

Count Rate (kcps): 156.3

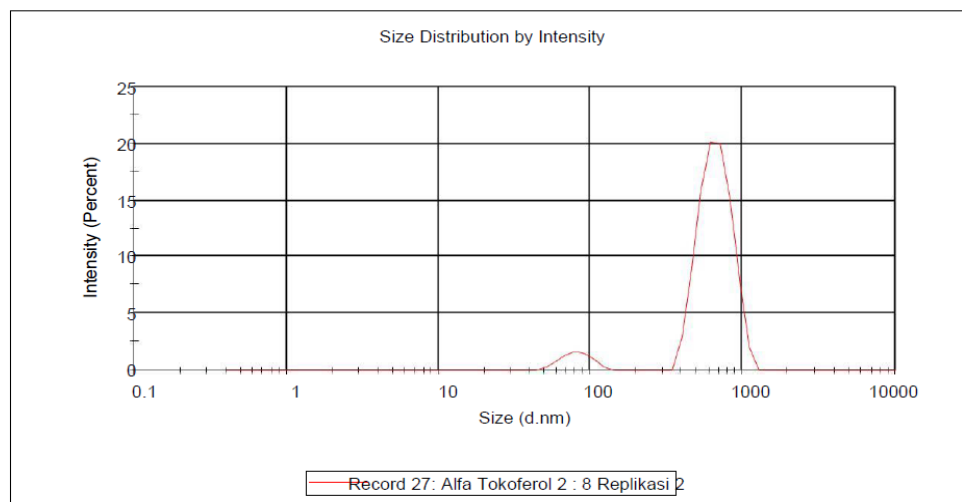
Measurement Position (mm): 1.25

Cell Description: Disposable sizing cuvette

Attenuator: 9

Results

		Size (d.nm...	% Intensity:	St Dev (d.n...	
Z-Average (d.nm):	813.9	Peak 1:	674.5	93.1	161.9
PdI:	0.540	Peak 2:	81.35	6.9	17.90
Intercept:	0.848	Peak 3:	0.000	0.0	0.000

Result quality **Refer to quality report**

Lampiran 9. Pengukuran Distribusi Ukuran Globul Nanoemulsi Replikasi 3

Size Distribution Report by Intensity

v2.2



Sample Details

Sample Name: Alfa Tokoferol 2 : 8 Replikasi 3

SOP Name: mansettings.nano

General Notes:

File Name: Alpha tocopherol 2016.dts Dispersant Name: Water
 Record Number: 51 Dispersant RI: 1.330
 Material RI: 1.33 Viscosity (cP): 0.8872
 Material Absorbance: 0.006 Measurement Date and Time: Thursday, June 09, 2016 1...

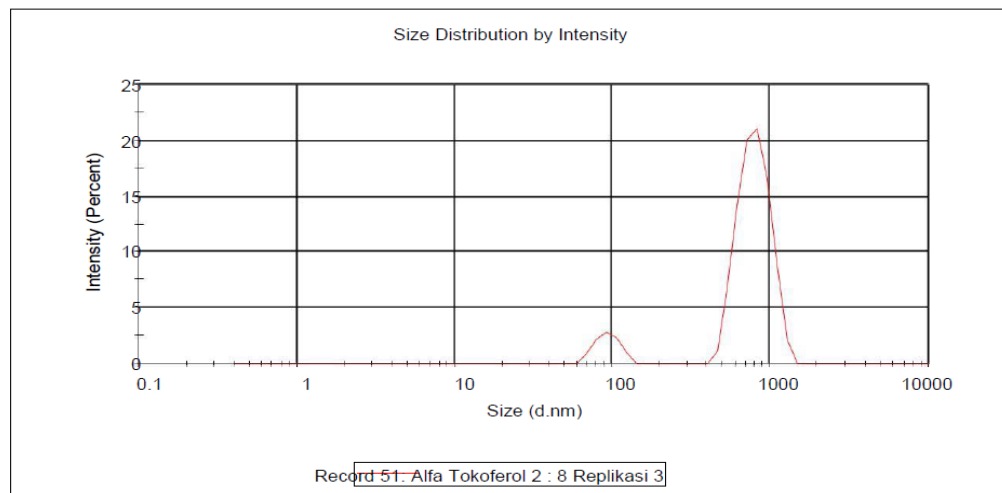
System

Temperature (°C): 25.0 Duration Used (s): 60
 Count Rate (kcps): 207.6 Measurement Position (mm): 0.85
 Cell Description: Disposable sizing cuvette Attenuator: 9

Results

	Size (d.nm...)	% Intensity:	St Dev (d.n...
Z-Average (d.nm): 902.2	Peak 1: 803.0	90.5	181.7
Pdl: 0.589	Peak 2: 93.08	9.5	15.78
Intercept: 0.820	Peak 3: 0.000	0.0	0.000

Result quality Refer to quality report



Lampiran 10. Data Kurva Kalibrasi Alfa-Tokoferol Asetat dalam Ethanol 96% dan Dapar Fosfat pada Panjang Gelombang 284,0 nm

Panjang gelombang (nm)	Konsentrasi (ppm)	Serapan (A)
284,0	75	0.243
284,0	100	0.322
284,0	150	0.489
284,0	200	0.628
284,0	250	0.803

Lampiran 11. Data uji difusi alfa-tokoferol asetat dari sediaan nanoemulsi dan emulsi

Menit ke-	Rerata $\pm$ SD	
	Nanoemulsi	Emulsi
5	48,40 $\pm$ 18,58	15,61 $\pm$ 1,14
15	63,34 $\pm$ 14,80	22,28 $\pm$ 1,37
30	95,03 $\pm$ 7,64	32,22 $\pm$ 7,24
45	77,12 $\pm$ 15,56	26,78 $\pm$ 4,12
60	67,52 $\pm$ 10,95	25,85 $\pm$ 3,57
120	57,53 $\pm$ 11,45	22,68 $\pm$ 3,28
180	52,53 $\pm$ 7,94	19,47 $\pm$ 1,95
240	45,38 $\pm$ 2,96	16,86 $\pm$ 3,43
300	36,44 $\pm$ 2,21	14,76 $\pm$ 4,29
360	31,67 $\pm$ 2,50	11,67 $\pm$ 2,36

Lampiran 12. Contoh perhitungan jumlah alfa-tokoferol asetat yang berdifusi dari sediaan nanoemulsi pada menit ke-15

$$\text{Serapan (y)} = 0,332$$

$$y = 0,0032x + 0,0059$$

$$x = 101,9 \text{ ppm}$$

$$\begin{aligned} \text{Faktor pengenceran} &= \text{volume labu terukur} : \text{volume sampling} \\ &= 10 \text{ ml} : 3 \text{ ml} \\ &= 3,3 \text{ ml} \end{aligned}$$

$$\begin{aligned} \text{Kadar sebelum pengenceran} &= \text{Konsentrasi} \times \text{factor pengenceran} \\ &= 101,9 \text{ ppm} \times 3,3 \text{ ml} \\ &= 339,68 \text{ ppm} \end{aligned}$$

$$\begin{aligned} \text{Kadar dalam 27 ml} &= 27 \text{ ml} / 1000 \text{ ml} \times 339,68 \text{ ppm} \\ &= 9,17 \text{ ppm} \end{aligned}$$

$$\begin{aligned} \text{Kadar yang sebenarnya} &= \text{Kadar dalam 27 ml} \times \text{factor koreksi} \\ &= 9,17 \text{ ppm} \times 0,744 \\ &= 9,92 \end{aligned}$$

$$\begin{aligned} \text{Jumlah alfa-tokoferol asetat yang berdifusi} &= \frac{\text{Kadar menit ke-15}}{\text{Kadar yang sebenarnya}} \times 100 \% \\ &= \frac{9,92}{18,1} \times 100 \% \\ &= 54,78 \end{aligned}$$

Lampiran 13. Contoh perhitungan kadar alfa-tokoferol asetat yang sebenarnya

Serapan (y) = 0,435

$y = 0,0032x + 0,0059$

$x = 134,093 \text{ ppm}$

Faktor pengenceran = volume labu terukur : volume sampling

= 10 ml : 2 ml

= 5 ml

Kadar sebelum pengenceran = Konsentrasi x faktor pengenceran

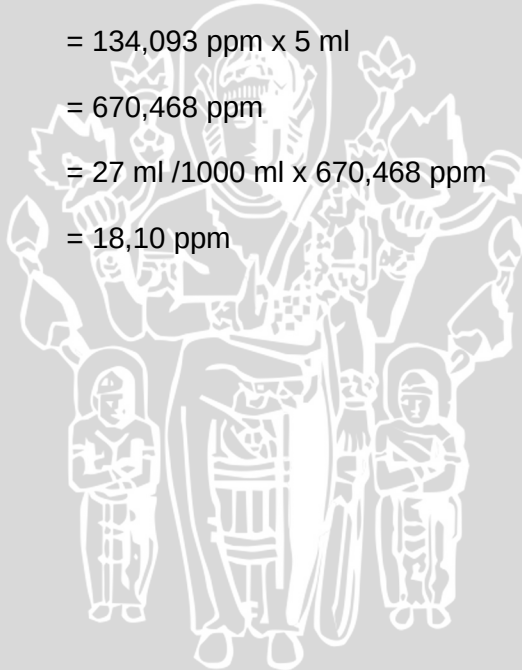
= 134,093 ppm x 5 ml

= 670,468 ppm

Kadar yang sebenarnya = 27 ml / 1000 ml x 670,468 ppm

= 18,10 ppm

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Lampiran 14. Contoh Hasil Perhitungan Uji Penjerapan

Hasil absorbansi

Replikasi	Penimbangan	Absorbansi	Kadar
I	1,0245 g	0,376	11,2015 ppm
II	1,0508 g	0,569	17,2443 ppm
III	1,0336 g	0,471	14,1759 ppm

$$y = 0,03193x + 0,01824$$

Perhitungan

- Konsentrasi nanoemulsi (ppm)

$$\frac{1,0245 \text{ g} = 1024,5 \text{ mg}}{4 \text{ ml}} = \frac{1024,5 \times 250 \times 1000 \text{ g}}{1000 \text{ ml}}$$

$$= 256125 \text{ ppm}$$
- Faktor pengenceran I

$$1 \times 256125 = 5 \cdot x$$

$$x = 51225$$
- Faktor pengenceran II

$$0,3 \cdot 51225 = 5 \cdot x$$

$$x = 3073,5 \text{ ppm}$$
- Konsentrasi alfa-tokoferol asetat yang tidak terjerap (ppm)

$$3,55\% \times 3073,5 = 109,10925 \text{ ppm}$$
- Persen alfa-tokoferol asetat yang terjerap (%)

$$100\% - \left(\frac{11,2015}{109,10925} \times 100\% \right) = 89,734\%$$

Lampiran 15. Data Analisa Statistik Uji pH

Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Batch1	3	100.0%	0	.0%	3	100.0%
Batch2	3	100.0%	0	.0%	3	100.0%
Batch3	3	100.0%	0	.0%	3	100.0%

Descriptives

			Statistic	Std. Error
Batch1	Mean		8.06867	.038351
	95% Confidence Interval for Mean	Lower Bound	7.90366	1.225
		Upper Bound	8.23368	
	5% Trimmed Mean		.	
	Median		8.03700	
	Variance		.004	
	Std. Deviation		.066425	
	Minimum		8.024	
	Maximum		8.145	
	Range		.121	
	Interquartile Range		.	
	Skewness		1.658	
	Kurtosis		.	
Batch2	Mean		8.04100	.023714
	95% Confidence Interval for Mean	Lower Bound	7.93897	
		Upper Bound	8.14303	

5% Trimmed Mean	.	
Median	8.02800	
Variance	.002	
Std. Deviation	.041073	
Minimum	8.008	
Maximum	8.087	
Range	.079	
Interquartile Range	.	
Skewness	1.282	1.225
Kurtosis	.	.
Batch3 Mean	8.03467	.013043
95% Confidence Interval for Mean	Lower Bound 7.97855 Upper Bound 8.09078	
5% Trimmed Mean	.	
Median	8.03700	
Variance	.001	
Std. Deviation	.022591	
Minimum	8.011	
Maximum	8.056	
Range	.045	
Interquartile Range	.	
Skewness	-.460	1.225
Kurtosis	.	.

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Batch1	.350	3	.	.830	3	.187
Batch2	.291	3	.	.925	3	.470
Batch3	.208	3	.	.992	3	.829

One way Annova

Descriptives

pH								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
BATCH1	3	8.06867	.066425	.038351	7.90366	8.23368	8.024	8.145
BATCH2	3	8.04100	.041073	.023714	7.93897	8.14303	8.008	8.087
BATCH3	3	8.03467	.022591	.013043	7.97855	8.09078	8.011	8.056
Total	9	8.04811	.043562	.014521	8.01463	8.08160	8.008	8.145

Test of Homogeneity of Variances

pH				
Levene Statistic	df1	df2	Sig.	
2.970	2	6	.127	

ANOVA

pH					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.002	2	.001	.445	.660
Within Groups	.013	6	.002		
Total	.015	8			

Lampiran 16. Data Analisa Statistik Efisiensi Penjerapan

Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
hO	3	100.0%	0	.0%	3	100.0%
h45	3	100.0%	0	.0%	3	100.0%

Descriptives

		Statistic	Std. Error
hO	Mean	9.12153 E1	.305781
	95% Confidence Interval for Mean	8.98997 E1	
	Lower Bound	9.25310 E1	
	Upper Bound	9.25310 E1	
	5% Trimmed Mean	.	
	Median	9.12960 E1	
	Variance	.281	
	Std. Deviation	.529628	
	Minimum	90.650	
	Maximum	91.700	
	Range	1.050	
	Interquartile Range	.	
	Skewness	-.669	1.225

	Kurtosis		
h45	Mean	8.85793 E1	.499750
	95% Confidence Interval for Mean	Lower Bound 8.64291 E1	
		Upper Bound 9.07296 E1	
	5% Trimmed Mean	.	
	Median	8.88960 E1	
	Variance	.749	
	Std. Deviation	.865592	
	Minimum	87.600	
	Maximum	89.242	
	Range	1.642	
	Interquartile Range	.	
	Skewness	-1.426	1.225
	Kurtosis	.	.

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
hO	.227	3	.	.983	3	.747
h45	.309	3	.	.900	3	.384

a. Lilliefors Significance Correction

T-test

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 hO E1	9.12153	3	.529628	.305781
h45 E1	8.85793	3	.865592	.499750

Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 hO & h45	3	.982	.121

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	hO - h45	2.636000E0	.359705	.207676	1.742442	3.529558	12.693	2	.006

Lampiran 17. Data Analisa Statistik Ukuran Globul

Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Replikasi1	3	100.0%	0	.0%	3	100.0%
Replikasi2	3	100.0%	0	.0%	3	100.0%
Replikasi3	3	100.0%	0	.0%	3	100.0%

Descriptives

			Statistic	Std. Error
Replikasi1	Mean		953.333	10.6823
	95% Confidence Interval for Mean	Lower Bound	907.371	
		Upper Bound	999.295	
	5% Trimmed Mean		.	
	Median		963.000	
	Variance		342.333	
	Std. Deviation		18.5023	
	Minimum		932.0	
	Maximum		965.0	
	Range		33.0	
	Interquartile Range		.	
	Skewness		-1.709	1.225
	Kurtosis		.	.
Replikasi2	Mean		832.833	15.4279
	95% Confidence Interval for Mean	Lower Bound	766.452	
		Upper Bound	899.214	

	5% Trimmed Mean		.	
	Median		821.200	
	Variance		714.063	
	Std. Deviation		26.7220	
	Minimum		813.9	
	Maximum		863.4	
	Range		49.5	
	Interquartile Range		.	
	Skewness		1.588	1.225
	Kurtosis		.	.
Replikasi3	Mean		913.333	6.8118
	95% Confidence Interval for Mean	Lower Bound	884.024	
		Upper Bound	942.642	
	5% Trimmed Mean		.	
	Median		912.100	
	Variance		139.203	
	Std. Deviation		11.7984	
	Minimum		902.2	
	Maximum		925.7	
	Range		23.5	
	Interquartile Range		.	
	Skewness		.465	1.225
	Kurtosis		.	.

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Replikasi1	.366	3	.	.795	3	.103
Replikasi2	.335	3	.	.858	3	.262
Replikasi3	.208	3	.	.992	3	.827

Oneway

Descriptives

zetaaverage

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	3	953.500	18.6346	10.7587	907.209	999.791	932.0	965.0
2	3	832.833	26.7220	15.4279	766.452	899.214	813.9	863.4
3	2	907.150	7.0004	4.9500	844.254	970.046	902.2	912.1
Total	8	896.662	58.9256	20.8334	847.399	945.926	813.9	965.0

Test of Homogeneity of Variances

zetaaverage

Levene Statistic	df1	df2	Sig.
2.741	2	5	.157

ANOVA

zetaaverage

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22133.967	2	11066.984	25.481	.002
Within Groups	2171.632	5	434.326		
Total	24305.599	7			

Lampiran 18. Data Analisa Statistik Indeks Polidispersitas

Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Replikasi1	3	100.0%	0	.0%	3	100.0%
Replikasi2	3	100.0%	0	.0%	3	100.0%
Replikasi3	3	100.0%	0	.0%	3	100.0%

Descriptives

		Statistic	Std. Error
Replikasi1	Mean	.60133	.020103
	95% Confidence Interval for Mean		
	Lower Bound	.51484	
	Upper Bound	.68783	
	5% Trimmed Mean	.	
	Median	.61000	
	Variance	.001	
	Std. Deviation	.034819	
	Minimum	.563	
	Maximum	.631	
	Range	.068	
	Interquartile Range	.	
	Skewness	-1.051	1.225
	Kurtosis	.	.
Replikasi2	Mean	.48000	.039686
	95% Confidence Interval for Mean		
	Lower Bound	.30924	
	Upper Bound	.65076	

	5% Trimmed Mean		.	
	Median		.49500	
	Variance		.005	
	Std. Deviation		.068739	
	Minimum		.405	
	Maximum		.540	
	Range		.135	
	Interquartile Range		.	
	Skewness		-.935	1.225
	Kurtosis		.	.
Replikasi3	Mean		.60933	.012143
	95% Confidence Interval for Mean	Lower Bound	.55709	
		Upper Bound	.66158	
	5% Trimmed Mean		.	
	Median		.60800	
	Variance		.000	
	Std. Deviation		.021032	
	Minimum		.589	
	Maximum		.631	
	Range		.042	
	Interquartile Range		.	
	Skewness		.284	1.225
	Kurtosis		.	.

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Replikasi1	.265	3	.	.954	3	.585
Replikasi2	.253	3	.	.964	3	.637
Replikasi3	.192	3	.	.997	3	.895

Oneway

Descriptives

Pdi

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Batch1	3	.60133	.034819	.020103	.51484	.68783	.563	.631
Batch2	3	.48000	.068739	.039686	.30924	.65076	.405	.540
Batch3	3	.60933	.021032	.012143	.55709	.66158	.589	.631
Total	9			.024797	.50637	.62074	.405	.631

Test of Homogeneity of Variances

Pdi

Levene Statistic	df1	df2	Sig.
2.227	2	6	.189

ANOVA

Pdi

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.032	2	.016	7.409	.024
Within Groups	.013	6	.002		
Total	.044	8			

Lampiran 19. Data Analisa Statistik Uji Difusi Nanoemulsi

Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Replikasi1	10	100.0%	0	.0%	10	100.0%
Replikasi2	10	100.0%	0	.0%	10	100.0%
Replikasi3	9	90.0%	1	10.0%	10	100.0%

Descriptives

		Statistic	Std. Error
Replikasi1	Mean	56.4750	7.34317
	95% Confidence Interval for Mean	Lower Bound 39.8636 Upper Bound 73.0864	
	5% Trimmed Mean	55.2944	
	Median	49.3050	
	Variance	539.222	
	Std. Deviation	2.32212	
		E1	
	Minimum	34.55	
	Maximum	99.65	
	Range	65.10	
	Interquartile Range	39.46	
	Skewness	1.025	.687
	Kurtosis	-.204	1.334

Replikasi2	Mean		65.6550	6.67391
	95% Confidence	Lower Bound	50.5576	
	Interval for Mean	Upper Bound	80.7524	
	5% Trimmed Mean		65.7689	
	Median		70.2900	
	Variance		445.411	
	Std. Deviation		2.11048	
			E1	
	Minimum		30.01	
	Maximum		99.25	
	Range		69.24	
	Interquartile Range		34.14	
	Skewness		-.343	.687
	Kurtosis		-.394	1.334
Replikasi3	Mean		50.3967	5.56591
	95% Confidence	Lower Bound	37.5617	
	Interval for Mean	Upper Bound	63.2317	
	5% Trimmed Mean		49.5146	
	Median		49.0300	
	Variance		278.814	
	Std. Deviation		1.66977	
			E1	
	Minimum		30.46	
	Maximum		86.21	
	Range		55.75	
	Interquartile Range		20.80	
	Skewness		1.164	.717
	Kurtosis		1.928	1.400

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Replikasi1	.229	10	.146	.858	10	.073
Replikasi2	.179	10	.200*	.960	10	.784
Replikasi3	.169	9	.200*	.916	9	.362

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Oneway

Descriptives

Difusi

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	10	56.4750	23.22116	7.34317	39.8636	73.0864	34.55	99.65
2	10	65.6550	21.10476	6.67391	50.5576	80.7524	30.01	99.25
3	10	50.3760	15.74291	4.97834	39.1142	61.6378	30.46	86.21
Total	30	57.5020	20.57393	3.75627	49.8196	65.1844	30.01	99.65

Test of Homogeneity of Variances

Difusi

Levene Statistic	df1	df2	Sig.
1.087	2	27	.352

ANOVA

Difusi

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1183.060	2	591.530	1.440	.255
Within Groups	11092.248	27	410.824		
Total	12275.308	29			



Lampiran 20. Data Analisa Statistik Uji Difusi Emulsi

Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Replikasi1	10	100.0%	0	.0%	10	100.0%
Replikasi2	10	100.0%	0	.0%	10	100.0%
Replikasi3	10	100.0%	0	.0%	10	100.0%

Descriptives

			Statistic	Std. Error
Replikasi1	Mean		17.8090	1.74908
	95% Confidence Interval for Mean	Lower Bound	13.8523	
		Upper Bound	21.7657	
	5% Trimmed Mean		17.9467	
	Median		19.0100	
	Variance		30.593	
	Std. Deviation		5.53107	
	Minimum		8.95	
	Maximum		24.19	
	Range		15.24	
	Interquartile Range		9.94	
	Skewness		-.512	.687
	Kurtosis		-1.258	1.334
Replikasi2	Mean		23.3270	2.22189
	95% Confidence Interval for Mean	Lower Bound	18.3007	

	Interval for Mean	Upper Bound	28.3533	
	5% Trimmed Mean		23.3072	
	Median		22.6700	
	Variance		49.368	
	Std. Deviation		7.02623	
	Minimum		12.79	
	Maximum		34.22	
	Range		21.43	
	Interquartile Range		12.38	
	Skewness		.044	.687
	Kurtosis		-.969	1.334
Replikasi3	Mean		21.3240	2.31093
	95% Confidence	Lower Bound	16.0963	
	Interval for Mean	Upper Bound	26.5517	
	5% Trimmed Mean		20.8311	
	Median		19.6350	
	Variance		53.404	
	Std. Deviation		7.30781	
	Minimum		13.27	
	Maximum		38.25	
	Range		24.98	
	Interquartile Range		9.31	
	Skewness		1.454	.687
	Kurtosis		2.508	1.334

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Replikasi1	.195	10	.200*	.904	10	.243
Replikasi2	.120	10	.200*	.974	10	.922
Replikasi3	.158	10	.200*	.882	10	.136

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Oneway

Descriptives

Difusi

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	10	17.8090	5.53107	1.74908	13.8523	21.7657	8.95	24.19
2	10	23.3270	7.02623	2.22189	18.3007	28.3533	12.79	34.22
3	10	21.3240	7.30781	2.31093	16.0963	26.5517	13.27	38.25
Total	30	20.8200	6.83887	1.24860	18.2663	23.3737	8.95	38.25

Test of Homogeneity of Variances

Difusi

Levene Statistic	df1	df2	Sig.
.180	2	27	.836

ANOVA

Difusi

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	156.052	2	78.026	1.755	.192
Within Groups	1200.282	27	44.455		
Total	1356.334	29			



Lampiran 21. Data Analisa Statistik Uji Difusi Nanoemulsi dan Emulsi Menit ke-5

Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Nanoemulsi	3	100.0%	0	.0%	3	100.0%
Emulsi	3	100.0%	0	.0%	3	100.0%

Descriptives

			Statistic	Std. Error
Nanoemulsi	Mean		48.4033	10.73010
	95% Confidence Interval for Mean	Lower Bound	2.2354	
		Upper Bound	94.5712	
	5% Trimmed Mean		.	
	Median		38.3400	
	Variance		345.405	
	Std. Deviation		1.85851	
			E1	
	Minimum		37.02	
	Maximum		69.85	
	Range		32.83	
	Interquartile Range		.	
	Skewness		1.722	1.225
	Kurtosis		.	.
Emulsi	Mean		15.6100	.66121
	95% Confidence Interval for Mean	Lower Bound	12.7650	

Interval for Mean	Upper Bound	18.4550	
5% Trimmed Mean		.	
Median		15.1700	
Variance		1.312	
Std. Deviation		1.14525	
Minimum		14.75	
Maximum		16.91	
Range		2.16	
Interquartile Range		.	
Skewness		1.474	1.225
Kurtosis		.	.

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Nanoemulsi	.373	3	.	.780	3	.068
Emulsi	.316	3	.	.889	3	.352

a. Lilliefors Significance Correction

T-Test

Group Statistics

Replik asi	N	Mean	Std. Deviation	Std. Error Mean
Sediaan 1	3	48.4033	18.58508	10.73010
2	3	15.6100	1.14525	.66121

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower Upper
Sediaan	Equal variances assumed	13.894	.020	3.050	4	.038	32.79333	10.75045	2.94529 62.64138
	Equal variances not assumed			3.050	2.015	.092	32.79333	10.75045	-13.12965 78.71631

Lampiran 22. Data Analisa Statistik Uji Difusi Nanoemulsi dan Emulsi Menit ke-15

Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Nanoemulsi	3	100.0%	0	.0%	3	100.0%
Emulsi	3	100.0%	0	.0%	3	100.0%

Descriptives

			Statistic	Std. Error
Nanoemulsi	Mean		63.3400	8.55000
	95% Confidence Interval for Mean	Lower Bound	26.5523	
		Upper Bound	1.0013E2	
	5% Trimmed Mean		.	
	Median		54.8000	
	Variance		219.308	
	Std. Deviation		1.48090E1	
	Minimum		54.78	
	Maximum		80.44	
	Range		25.66	
	Interquartile Range		.	
	Skewness		1.732	1.225
	Kurtosis		.	.

Emulsi	Mean		22.2833	.79216
	95% Confidence Interval for Mean	Lower Bound	18.8750	
		Upper Bound	25.6917	
	5% Trimmed Mean		.	
	Median		22.3700	
	Variance		1.883	
	Std. Deviation		1.37205	
	Minimum		20.87	
	Maximum		23.61	
	Range		2.74	
	Interquartile Range		.	
	Skewness		-.283	
	Kurtosis		.	

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Nanoemulsi	.385	3	.	.751	3	.001
Emulsi	.192	3	.	.997	3	.895

a. Lilliefors Significance Correction

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Sediaan	6	42.8117	24.37562	20.87	80.44
Replikasi	6	1.50	.548	1	2

Mann-Whitney Test

Ranks				
	Replika si	N	Mean Rank	Sum of Ranks
Sediaan	1	3	5.00	15.00
	2	3	2.00	6.00
	Total	6		

Test Statistics ^b	
	Sediaan
Mann-Whitney U	.000
Wilcoxon W	6.000
Z	-1.964
Asymp. Sig. (2-tailed)	.050
Exact Sig. [2*(1-tailed Sig.)]	.100 ^a

a. Not corrected for ties.

b. Grouping Variable: Replikasi

Lampiran 23. Data Analisa Statistik Uji Difusi Nanoemulsi dan Emulsi Menit ke-30

Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Nanoemulsi	3	100.0%	0	.0%	3	100.0%
Emulsi	3	100.0%	0	.0%	3	100.0%

Descriptives

			Statistic	Std. Error
Nanoemulsi	Mean		95.0367	4.41484
	95% Confidence Interval for Mean	Lower Bound	76.0411	
		Upper Bound	1.1403E2	
	5% Trimmed Mean		.	
	Median		99.2500	
	Variance		58.473	
	Std. Deviation		7.64673	
	Minimum		86.21	
	Maximum		99.65	
	Range		13.44	
	Interquartile Range		.	
	Skewness		-1.727	1.225
	Kurtosis		.	.
Emulsi	Mean		32.2200	4.18015
	95% Confidence Interval for Mean	Lower Bound	14.2343	

Interval for Mean	Upper Bound	50.2057	
5% Trimmed Mean		.	
Median		34.2200	
Variance		52.421	
Std. Deviation		7.24023	
Minimum		24.19	
Maximum		38.25	
Range		14.06	
Interquartile Range		.	
Skewness		-1.148	1.225
Kurtosis		.	.

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Nanoemulsi	.376	3	.	.772	3	.050
Emulsi	.275	3	.	.943	3	.539

a. Lilliefors Significance Correction

T-Test

Group Statistics

Replik asi	N	Mean	Std. Deviation	Std. Error Mean
Sediaan 1	3	95.0367	7.64673	4.41484
2	3	32.2200	7.24023	4.18015

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Sediaan	Equal variances assumed	.053	.829	10.332	4	.000	62.81667	6.07984	45.93632	79.69701
	Equal variances not assumed			10.332	3.988	.001	62.81667	6.07984	45.91648	79.71686

UNIVERSITAS BRAWIJAYA



Lampiran 24. Certificate of Analysis Tween 80

**HASIL PEMERIKSAAN**

Nama Bahan : Tween 80
Batch : J 0759/15 (2841)
Ex : Kao Corporation
Grade : Farma

Jenis pemeriksaan	Persyaratan FI IV	Hasil
Pemerian	Cairan kental, jernih, berwarna kuning muda hingga coklat, berbau khas lemah	Cairan, kuning muda, jernih, bau khas lemah
Kelarutan	Larut dalam air, dalam etanol 95%, dalam etil asetat P, tidak larut dalam minyak mineral	Sesuai
Identifikasi	Menurut cara identifikasi pada F.I. ed.IV	Sesuai
Susut Pengeringan	$\leq 3.0 \%$	1.83%
pH	5.0 – 7.0 (Lar. 5% aqua bebas CO ₂)	6.0
Bobot Jenis	1,06 g/ml – 1,09 g/ml	1,074 g/ml
Bilangan asam	Tidak lebih dari 2,2	1.23 mg KOH/gr
Bilangan sabun	45-55	53.47 mg KOH/gr

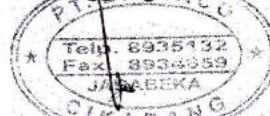
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Kesimpulan : Memenuhi syarat

Cikarang, 10 – 07 – 2015

Pemeriksa

Putreni
Analisis

Penanggung Jawab



Dra. Tri Hartati
Apoteker
SIK.3836/B

Lampiran 25. Certificate of Analysis Propilen glikol

**PT. BRATACO****HASIL PEMERIKSAAN**

Nama Bahan : Propylene Glycol
No Batch : J 0755/15 (C815F8BTD1)
Ex : Dow Chemical Co.
E.D : 08/2017
Grade : Farma

Jenis Pemeriksaan	Persyaratan USP NF 19	Hasil
Pemerian	Cairan kental jernih, tidak berwarna, tidak berbau, rasa agak manis, hygrokopik	Sesuai
Kelarutan	Dapat bercampur dgn air, dengan etanol dan dengan kloroform	Sesuai
Keasam-basaan	≤ 0.3 ml NaOH 0.1N	0.1 ml NaOH 0.1 N
Index Bias	1,431 - 1,433	1,431
Bobot per-ml	1,035 g - 1,037 g/ml	1,037 g/ml
pH	± 6.5	6.5

Kesimpulan : Memenuhi Syarat

Cikarang, 02- 11 - 2015

Pemeriksa

Putreni
Analisis

Penanggung Jawab



Dra. Tri Hartati
Apoteker
SIK.3836/B

Lampiran 26. Certificate of Analysis Gliserin



HASIL PEMERIKSAAN



Nama Bahan : Glycerin
 Batch : J 0745/15 (52480388-GB-1)
 Ex : P&G Chemicals
 ED : 09/2017
 Grade : Farma

Jenis Pemeriksaan	Persyaratan FI IV	Hasil
Pemerian	Cairan, jernih, tidak berwarna, tidak berbau, rasa manis diikuti rasa hangat, higroskopik	Sesuai
Kelarutan	Dapat bercampur dengan air dan etanol, praktis tidak larut dalam kloroform dan dalam eter	Sesuai
Identifikasi	Panaskan dengan kalium bisulfat P; terjadi uap merangsang	Positif
pH	5,5 – 7,5	5.5
Index Bias	1.471-1.474	1.472
Susut Pengeringan	≤ 2.0 %	1.52%
Bobot jenis	1,255 g/ml – 1,260 g/ml sesuai dengan kadar 98,0% – 100,0%	1.260 g/mL

Kesimpulan : Memenuhi Syarat

Cikarang, 26 – 10 - 2015

Pemeriksa

Putreni
Analis

Penanggung Jawab



Dra. Tri Hartati
Apoteker
SIK.3836/B

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