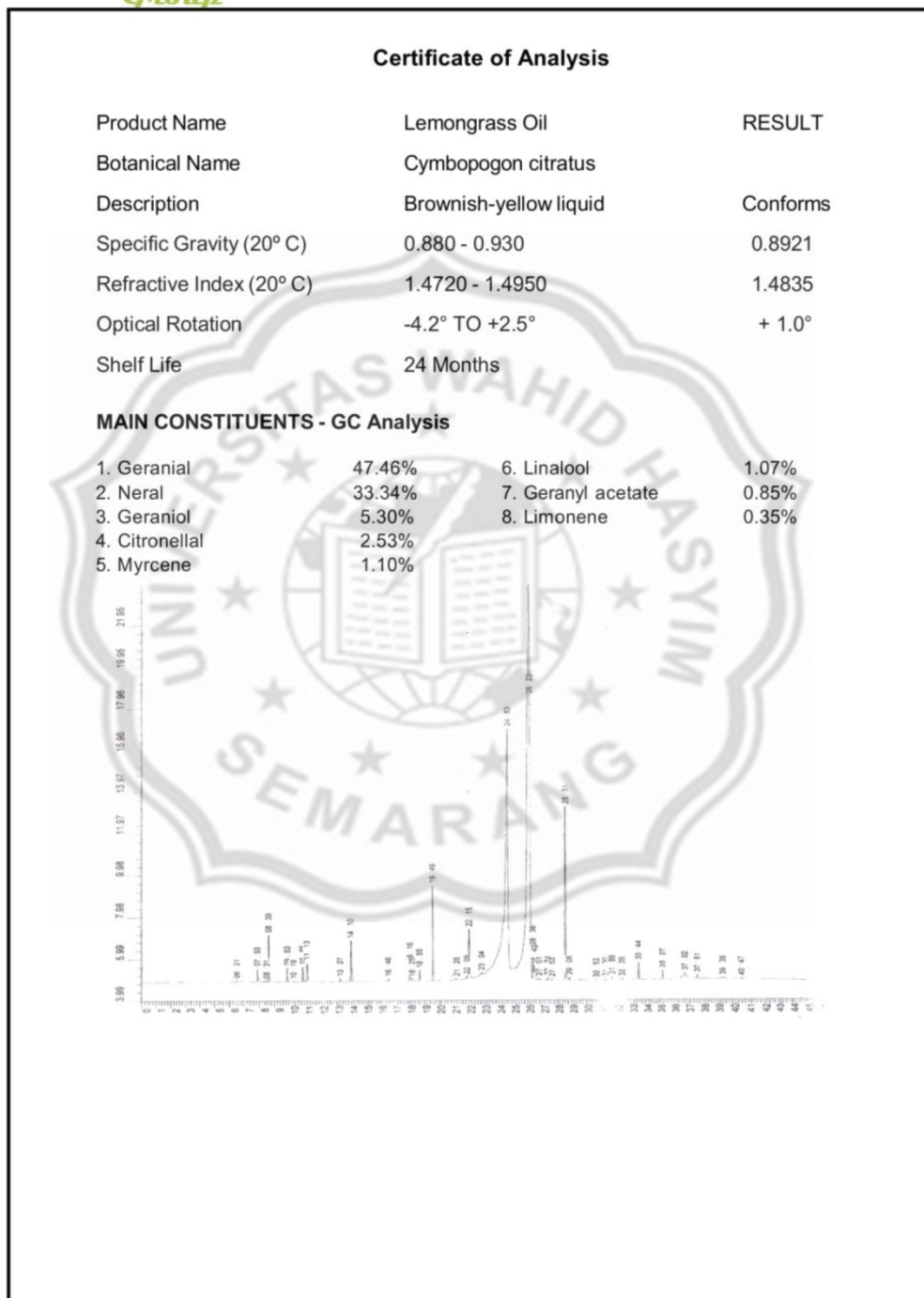




-Lampiran 1. *Certifikat of Analysis Minyak Sereh (Cymbopogon citratus)*



Lampiran 2. Sertifikat Bebas Laboratorium Teknologi Farmasi**UNIVERSITAS WAHID HASYIM
FAKULTAS FARMASI
BAGIAN FARMASETIKA**

Jl. Menoreh Tengah X / 22 Sampangan – Semarang 50236 Telp. (024) 8505680 – 8505681 fax. (024) 8505680

SURAT KETERANGAN

No. 022/Lab. Farmasetika/C.05/UWH/III/2019

Assalamu'alaikum Wr. Wb.

Yang bertanda tangan dibawah ini, Kepala Bagian Farmasi Fisika & Farmasetika Fakultas Farmasi Universitas Wahid Hasyim Semarang menerangkan bahwa :

Nama : Amelia Septiany
NIM : 145010098
Institusi : Farmasi

Telah melakukan formulasi di Laboratorium Teknologi Farmasi dalam rangka penelitian dengan judul :

“Pengaruh konsentrasi CMC-Na dalam emulgel minyak sereh (*Cymbopogon citratus*) terhadap stabilitas fisik dan aktivitas antiseptik.”

Demikian surat keterangan ini dibuat untuk dipergunakan semestinya.

Wassalamu'alaikum Wr. Wb.

Semarang, Maret 2019

Kepala Bagian Farmasi Fisika & Farmasetika



Irya Zulfa, M.Sc, Apt

Lampiran 3. Sertifikat Bebas Laboratorium Fitokimia

UNIVERSITAS WAHID HASYIM
FAKULTAS FARMASI
BAGIAN BIOLOGI FARMASI

Jl. Menoreh Tengah X / 22 Sampangan – Semarang 50236 Telp. (024) 8505680 – 8505681 fax. (024) 8505680

SURAT KETERANGAN

No.211/Lab.Biologi Farmasi/C.05/UWH/I/2019

Assalamu'alaikum Wr. Wb.

Yang bertandatangan di bawah ini, Kepala Bagian Biologi Farmasi Universitas Wahid Hasyim Semarang menerangkan bahwa:

Nama : Amelia Septiany
NIM : 145010098

Telah melakukan uji stabilitas menggunakan oven dalam rangka penelitian dengan judul: "Pengaruh Konsentrasi CMC Terhadap Sifat Fisik Emulgel Minyak Sereh (*Cymbopogon citratus* (Dc.) Staff.) Beserta Uji Stabilitas Fisik dan Aktivitas Antiseptik".

Demikian surat keterangan ini dibuat untuk dipergunakan semestinya.
Wassalamu'alaikum Wr. Wb.

Semarang, Januari 2019
Ka. Bag Biologi Farmasi

Dewi Andini K.M., M.Farm., Apt.

Lampiran 4. Perhitungan HLB Emulgel Minyak Sereh

HLB =

$$\left(\frac{\text{Tween 80 (g)}}{\text{Tween 80(g) + Span 80(g)} \times \text{HLB tween 80} \right) + \left(\frac{\text{Span 80(g)}}{\text{Tween 80(g) + Span 80(g)} \times \text{HLB span 80} \right)$$

$$\left(\frac{17,5}{17,5 + 2,5} \times 15 \right) + \left(\frac{2,5}{17,5 + 2,5} \times 15 \right) = 13,687$$



Lampiran 5. Uji Regresi Linier Sifat Fisik Emulgel Minyak Sereh Basis

CMC-Na

1. pH

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.982 ^a	.965	.960	.03809

a. Predictors: (Constant), Formula

b. Dependent Variable: pH

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.282	1	.282	194.147	.000 ^a
	Residual	.010	7	.001		
	Total	.292	8			

a. Predictors: (Constant), Formula

b. Dependent Variable: pH

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.269	.034		186.621	.000
	Formula	-.217	.016	-.982	-13.934	.000

a. Dependent Variable: pH

2. UJI FISIK VISKOSITAS

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.965 ^a	.932	.922	4.71825

a. Predictors: (Constant), Formula

b. Dependent Variable: Viskositas

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2128.167	1	2128.167	95.597	.000 ^a
	Residual	155.833	7	22.262		
	Total	2284.000	8			

a. Predictors: (Constant), Formula

b. Dependent Variable: Viskositas

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-10.000	4.161		-2.403	.047
	Formula	18.833	1.926	.965	9.777	.000

a. Dependent Variable: Viskositas

Lampiran 5. Lanjutan

3. UJI FISIK DAYA SEBAR

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.982 ^a	.965	.960	1.09142

a. Predictors: (Constant), Formula

b. Dependent Variable: daya sebar

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	231.509	1	231.509	194.350	.000 ^a
	Residual	8.338	7	1.191		
	Total	239.847	8			

a. Predictors: (Constant), Formula

b. Dependent Variable: daya sebar

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	28.687	.963		29.803	.000
	Formula	-6.212	.446	-.982	-13.941	.000

a. Dependent Variable: daya sebar

4. UJI FISIK DAYA LEKAT

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.877 ^a	.768	.735	.17531

a. Predictors: (Constant), Formula

b. Dependent Variable: Daya lekat

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.714	1	.714	23.236	.002 ^a
	Residual	.215	7	.031		
	Total	.929	8			

a. Predictors: (Constant), Formula

b. Dependent Variable: Daya lekat

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.581	.155		10.226	.000
	Formula	.345	.072	.877	4.820	.002

a. Dependent Variable: Daya lekat

Lampiran 6. Uji Stabilitas Fisik Emulgel Minyak Sereh Basis CMC-Na

1. FORMULA 1

A. Uji Stabilitas pH

- Uji Normalitas

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.103	21	.200 [*]	.976	21	.855

- Uji Homogenitas

Levene Statistic	df1	df2	Sig.
.850	6	14	.553

- Uji One Way Anova

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.132	6	.022	4.554	.009
Within Groups	.068	14	.005		
Total	.200	20			

- Uji LSD

(i) Siklus	(j) Siklus	Mean Difference (i-j)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Siklus 0	Siklus 1	-.00667	.05685	.908	-.1286	.1153
	Siklus 2	.11000	.05685	.073	-.0119	.2319
	Siklus 3	.10333	.05685	.091	-.0186	.2253
	Siklus 4	.15000 [*]	.05685	.019	.0281	.2719
	Siklus 5	.20000 [*]	.05685	.003	.0781	.3219
	Siklus 6	.20333 [*]	.05685	.003	.0814	.3253

B. Uji Stabilitas Viskositas

- Uji Normalitas

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.175	21	.091	.909	21	.052

Lampiran 6. Lanjutan

- **Uji Homogenitas**

Levene Statistic	df1	df2	Sig.
2.667	6	14	.061

- **Uji One Way Anova**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	45.143	6	7.524	26.333	.000
Within Groups	4.000	14	.286		
Total	49.143	20			

- **Uji LSD**

(i) siklus	(j) siklus	Mean Difference (i-j)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
siklus 0	siklus 1	-.333	.436	.458	-.60	1.27
	siklus 2	1.333 [*]	.436	.009	.40	2.27
	siklus 3	2.333 [*]	.436	.000	1.40	3.27
	siklus 4	3.000 [*]	.436	.000	2.06	3.94
	siklus 5	3.667 [*]	.436	.000	2.73	4.60
	siklus 6	4.000 [*]	.436	.000	3.06	4.94

C. Uji Stabilitas Daya Sebar

- **Uji Normalitas**

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.102	21	.200 [*]	.964	21	.593

- **Uji Homogenitas**

Levene Statistic	df1	df2	Sig.
1.749	6	14	.182

- **Uji One Way Anova**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26.088	6	4.348	27.365	.000
Within Groups	2.224	14	.159		
Total	28.312	20			

Lampiran 6. Lanjutan

- Uji LSD

(I) Siklus	(J) Siklus	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
siklus 0	siklus 1	-.35000	.32546	.300	-1.0480	.3480
	siklus 2	-1.12743 [*]	.32546	.004	-1.8255	-.4294
	siklus 3	-1.55000 [*]	.32546	.000	-2.2480	-.8520
	siklus 4	-1.93667 [*]	.32546	.000	-2.6347	-1.2386
	siklus 5	-2.72667 [*]	.32546	.000	-3.4247	-2.0286
	siklus 6	-3.32333 [*]	.32546	.000	-4.0214	-2.6253

D. Uji Stabilitas Daya Lekat

- Uji Normalitas

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.141	21	.200 [*]	.934	21	.167

- Uji Homogenitas

Levene Statistic	df1	df2	Sig.
.894	6	14	.526

- Uji One Way Anova

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.283	6	.047	30.816	.000
Within Groups	.021	14	.002		
Total	.304	20			

- Uji LSD

(I) Siklus	(J) Siklus	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
siklus 0	siklus 1	.04333	.03192	.196	-.0251	.1118
	siklus 2	.06667	.03192	.056	-.0018	.1351
	siklus 3	.16333 [*]	.03192	.000	.0949	.2318
	siklus 4	.22667 [*]	.03192	.000	.1582	.2951
	siklus 5	.26333 [*]	.03192	.000	.1949	.3318
	siklus 6	.33667 [*]	.03192	.000	.2682	.4051

Lampiran 6. Lanjutan

2. FORMULA 2

A. Uji Stabilitas pH

- Uji Normalitas

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.231	21	.005	.870	21	.009

- Uji Homogenitas

Levene Statistic	df1	df2	Sig.
6.630	6	14	.002

- Uji Kruskal Wallis

Kruskal-Wallis

Ranks			
pH	Siklus	N	Mean Rank
	Siklus 0	3	20.00
	Siklus 1	3	13.33
	Siklus 2	3	11.00
	Siklus 3	3	11.00
	Siklus 4	3	7.67
	Siklus 5	3	8.67
	Siklus 6	3	5.33
	Total	21	

Test Statistics ^{a,b}	
	pH
Chi-Square	10.590
df	6
Asymp. Sig.	.102

B. Uji Stabilitas Viskositas

- Uji Normalitas

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.147	21	.200	.954	21	.410

- Uji Homogenitas

Levene Statistic	df1	df2	Sig.
.049	6	14	.999

Lampiran 6. Lanjutan

- **Uji One Way Anova**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	41.238	6	6.873	2.446	.079
Within Groups	39.333	14	2.810		
Total	80.571	20			

- **Uji LSD**

(I) Siklus	(J) Siklus	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
siklus 0	siklus 1	2.000	1.369	.166	-.94	4.94
	siklus 2	2.667	1.369	.072	-.27	5.60
	siklus 3	3.333 [*]	1.369	.029	.40	6.27
	siklus 4	3.333 [*]	1.369	.029	.40	6.27
	siklus 5	4.333 [*]	1.369	.007	1.40	7.27
	siklus 6	4.333 [*]	1.369	.007	1.40	7.27

C. Uji Stabilitas Daya Sebar

- **Uji Normalitas**

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.103	21	.200 [*]	.946	21	.282

- **Uji Homogenitas**

Levene Statistic	df1	df2	Sig.
.204	6	14	.970

- **Uji One Way Anova**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.424	6	1.404	1.966	.140
Within Groups	9.999	14	.714		
Total	18.423	20			

- **Uji LSD**

(I) Siklus	(J) Siklus	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
siklus 0	siklus 1	-.15000	.69004	.831	-1.6300	1.3300
	siklus 2	-.73333	.69004	.306	-2.2133	.7467
	siklus 3	-1.11000	.69004	.130	-2.5900	.3700
	siklus 4	-1.39333	.69004	.063	-2.8733	.0867
	siklus 5	-1.47333	.69004	.051	-2.9533	.0067
	siklus 6	-1.80000 [*]	.69004	.021	-3.2800	-.3200

Lampiran 6. Lanjutan

D. Uji Stabilitas Daya Lekat

- Uji Normalitas

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.108	21	.200 [*]	.979	21	.910

- Uji Homogenitas

Levene Statistic	df1	df2	Sig.
2.265	6	14	.097

- Uji One Way Anova

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.009	6	.002	.705	.651
Within Groups	.030	14	.002		
Total	.039	20			

- Uji LSD

(I) Siklus	(J) Siklus	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
siklus 0	siklus 1	-.01667	.03780	.666	-.0977	.0644
	siklus 2	.01000	.03780	.795	-.0711	.0911
	siklus 3	.01667	.03780	.666	-.0644	.0977
	siklus 4	.00000	.03780	1.000	-.0811	.0811
	siklus 5	.05000	.03780	.207	-.0311	.1311
	siklus 6	.03333	.03780	.393	-.0477	.1144

Lampiran 6. Lanjutan

3. FORMULASI 3

A. Uji Stabilitas pH

- Uji Normalitas

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.188	21	.052	.955	21	.428

- Uji Homogenitas

Levene Statistic	df1	df2	Sig.
1.829	6	14	.165

- Uji One Way Anova

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.053	6	.009	7.786	.001
Within Groups	.016	14	.001		
Total	.069	20			

- Uji LSD

(I) Siklus	(J) Siklus	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Siklus 0	Siklus 1	.03333	.02743	.244	-.0255	.0922
	Siklus 2	.03333	.02743	.244	-.0255	.0922
	Siklus 3	.08333 [*]	.02743	.009	.0245	.1422
	Siklus 4	.10333 [*]	.02743	.002	.0445	.1622
	Siklus 5	.13667 [*]	.02743	.000	.0778	.1955
	Siklus 6	.13667 [*]	.02743	.000	.0778	.1955

B. Uji Stabilitas Viskositas

- Uji Normalitas

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.224	21	.007	.886	21	.019

Lampiran 6. Lanjutan

- **Uji Homogenitas**

Levene Statistic	df1	df2	Sig.
1.374	6	14	.291

- **Uji Krukal Wallis**

Kruskal-Wallis

Ranks			
	Siklus	N	Mean Rank
Daya lekat	siklus 0	3	16.17
	siklus 1	3	14.67
	siklus 2	3	15.50
	siklus 3	3	8.83
	siklus 4	3	8.83
	siklus 5	3	6.50
	siklus 6	3	6.50
	Total	21	

Test Statistics ^{a,b}	
	Daya lekat
Chi-Square	9.405
df	6
Asymp. Sig.	.152

C. Uji Stabilitas Daya sebar

- **Uji Normailtas**

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.156	21	.200	.910	21	.054

- **Uji Homogenitas**

Levene Statistic	df1	df2	Sig.
3.616	6	14	.022

- **Uji Kruskal Wallis**

Kruskal-Wallis

Ranks			
	Siklus	N	Mean Rank
Daya lekat	siklus 0	3	2.83
	siklus 1	3	4.17
	siklus 2	3	8.00
	siklus 3	3	12.33
	siklus 4	3	15.33
	siklus 5	3	17.33
	siklus 6	3	17.00
	Total	21	

Test Statistics ^{a,b}	
	Daya lekat
Chi-Square	17.215
df	6
Asymp. Sig.	.009

Lampiran 6. Lanjutan

- Uji Mann Whitney

Mann-Whitney

Ranks

	Siklus	N	Mean Rank	Sum of Ranks
Daya lekat	siklus 0	3	2.83	8.50
	siklus 1	3	4.17	12.50
	Total	6		

Test Statistics^b

	Daya lekat
Mann-Whitney U	2.500
Wilcoxon W	8.500
Z	-.886
Asymp. Sig. (2-tailed)	.376
Exact Sig. [2*(1-tailed Sig.)]	.400 ^a

Ranks

	Siklus	N	Mean Rank	Sum of Ranks
Daya lekat	siklus 0	3	2.00	6.00
	siklus 2	3	5.00	15.00
	Total	6		

Test Statistics^b

	Daya lekat
Mann-Whitney U	.000
Wilcoxon W	6.000
Z	-2.087
Asymp. Sig. (2-tailed)	.037
Exact Sig. [2*(1-tailed Sig.)]	.100 ^a

Ranks

	Siklus	N	Mean Rank	Sum of Ranks
Daya lekat	siklus 0	3	2.00	6.00
	siklus 3	3	5.00	15.00
	Total	6		

Test Statistics^b

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

Ranks

	Siklus	N	Mean Rank	Sum of Ranks
Daya lekat	siklus 0	3	2.00	6.00
	siklus 4	3	5.00	15.00
	Total	6		

Test Statistics^b

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

Lampiran 6. Lanjutan

Ranks

	Siklus	N	Mean Rank	Sum of Ranks
Daya lekat	siklus 0	3	2.00	6.00
	siklus 5	3	5.00	15.00
	Total	6		

Test Statistics^b

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

Ranks

	Siklus	N	Mean Rank	Sum of Ranks
Daya lekat	siklus 0	3	2.00	6.00
	siklus 6	3	5.00	15.00
	Total	6		

Test Statistics^b

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

D. Uji Stabilitas Daya lekat

- **Uji Normalitas**

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.162	21	.158	.950	21	.344

- **Uji Homogenitas**

Levene Statistic	df1	df2	Sig.
.317	6	14	.917

- **Uji One Way Anova**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.004	6	.001	6.852	.001
Within Groups	.001	14	.000		
Total	.005	20			

Lampiran 6. Lanjutan

- Uji LSD

Multiple Comparisons						
Daya lekat LSD						
(I) Siklus	(J) Siklus	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
siklus 0	siklus 1	.00333	.00756	.666	-.0129	.0195
	siklus 2	.01000	.00756	.207	-.0062	.0262
	siklus 3	.02000	.00756	.019	.0038	.0362
	siklus 4	.03000	.00756	.001	.0138	.0462
	siklus 5	.02667	.00756	.003	.0105	.0429
	siklus 6	.03667	.00756	.000	.0205	.0529



Lampiran 7. Foto Sediaan dan Pengujian Emulgel

1. Siklus 0



Replikasi 1

Replikasi 2

Replikasi 3

2. Siklus 1

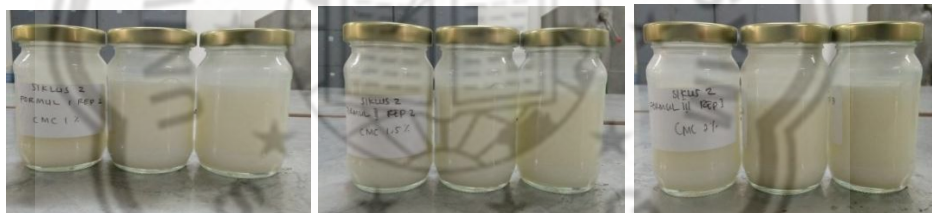


Replikasi 1

Replikasi 2

Replikasi 3

3. Siklus 2



Replikasi 1

Replikasi 2

Replikasi 3

4. Siklus 3



Replikasi 1

Replikasi 2

Replikasi 3

5. Siklus 4



Replikasi 1

Replikasi 2

Replikasi 3

Lampiran 7. Lanjutan

6. Siklus 5



Replikasi 1

Replikasi 2

Replikasi 3

7. Siklus 6



Replikasi 1

Replikasi 2

Replikasi 3



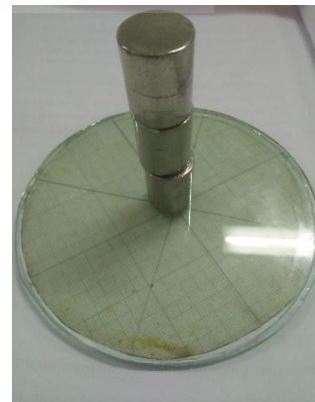
(a) Uji pH



(b) Uji viskositas



(c) Uji daya lekat



(d) Uji daya sebar