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## Lampiran 1. Hasil determinasi tanaman daun kemangi



### UPT-LABORATORIUM

Jl. Letjen Sutoyo, Mojosongo-Solo 57127 Telp. 0271-852518, Fax. 0271-853275

Nomor : 125/DET/UPT-LAB/02.02.2021  
 Hal : Hasil determinasi tumbuhan  
 Lamp. : -

Nama Pemesan : Putu Dyah Ayu Sekar Nindita  
 NIM : 23175240A  
 Program Studi : S1 Farmasi, Universitas Setia Budi, Surakarta  
 Nama Sampel : Kemangi (*Ocimum basilicum* L.)

### HASIL DETERMINASI TUMBUHAN

#### Klasifikasi

Kingdom : Plantae  
 Super Divisi : Spermatophyta  
 Divisi : Magnoliophyta  
 Kelas : Magnoliopsida/Dicotyledoneae  
 Ordo : Lamiales  
 Famili : Lamiaceae  
 Genus : *Ocimum*  
 Species : *Ocimum basilicum* L.

Hasil Determinasi menurut Steenis, C.G.G.J.V, Bloembergen, H, Eyma, P.J. 1992 :

1b – 2b – 3b – 4b – 6b – 7b – 9b – 10b – 11b – 12b – 13b – 14b – 16a. golongan 10. 239b – 243b – 244b – 248b – 249b – 250b – 266b – 267b – 273b – 276b – 278b – 279b – 282a. familia 110. Labiatae. 1a – 2b – 4b – 6b – 7b. 8. *Ocimum*. *Ocimum basilicum* L.

**Deskripsi:**

- Habitus** : Herba, tegak, tinggi 0,3 – 0,6 m.
- Akar** : Tunggang.
- Batang** : Percabangan monopodial, keunguan, berambut.
- Daun** : Tunggal, bulat telur elips, elips, atau memanjang, ujung runcing, pangkal tumpul, tepi bergerigi, bertulang menyirip, pada sebelah menyebelah ibu tulang 3 – 6 tulang cabang, panjang 3,2 – 3,4 cm, lebar 2,1 – 2,2 cm, herbaceus. Bila diremas berbau harum spesifik. Tangkai daun 0,5 – 1,8 cm.
- Bunga** : Karangan semu berbunga 6, berkumpul menjadi tandan ujung. Daun pelindung elip atau bulat telur, panjang 0,5 – 1 cm. Kelopak sisi luar berambut, sisi dalam bagian bawah dalam tabung berambut rapat, panjang lk 0,5 cm; gigi belakang jorong sampai bulat telur terbalik, dengan tepi mengecil sepanjang tabung, gigi samping kecil dan runcing; kedua gigi bawah berlekatan menjadi bibir bawah yang bercelah dua. Mahkota putih, berbibir 2, panjang 8 – 9 mm, dari luar berambut; bibir atas bertaju 4; bibir bawah rata. Benangsari 4, panjang 2.
- Buah** : Keras coklat tua, gundul, waktu dibasahi membengkak sekali. Tangkai dari kelopak buah tegak dan tertekan pada sumbu dari karangan bunga, dengan ujung bentuk kait melingkar. Kelopak buah panjang 6 – 9 mm.

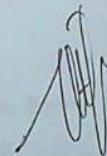
Kepala UPT-LAB  
Universitas Setia Budi



Asik Gunawan, Amdk

Surakarta, 2 Februari 2021

Penanggung jawab  
Determinasi Tumbuhan



Dra. Dewi Sulistyawati. M.Sc.

## Lampiran 2. Surat keterangan *Ethical Clearance*

2/17/2021

KEPK-RSDM



**HEALTH RESEARCH ETHICS COMMITTEE  
KOMISI ETIK PENELITIAN KESEHATAN**

***Dr. Moewardi General Hospital***  
**RSUD Dr. Moewardi**

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**ETHICAL CLEARANCE**  
**KELAIKAN ETIK**

**Nomor : 73 / II / HREC / 2021**

*The Health Research Ethics Committee Dr. Moewardi*  
Komisi Etik Penelitian Kesehatan RSUD Dr. Moewardi

*after reviewing the proposal design, herewith to certify*  
setelah menilai rancangan penelitian yang diusulkan, dengan ini menyatakan

*That the research proposal with topic :*  
Bahwa usulan penelitian dengan judul

**FORMULASI DAN UJI AKTIVITAS SEDIAAN GEL TABIR SURYA EKSTRAK ETANOL DAUN KEMANGI (*Ocimum americanum* L.) DENGAN VARIASI KONSENTRASI CARBOPOL 940**

*Principal investigator* : Putu Dyah Ayu Sekar Nindita  
Peneliti Utama 23175240A

*Location of research* : Universitas Setia Budi Surakarta  
Lokasi Tempat Penelitian

*Is ethically approved*  
Dinyatakan layak etik

Issued on : 17 Februari 2021

*Chairman*  
Ketua  
  
**Dr. Wahyu Dwi Atmoko., Sp.F.**  
19770224 201001 1 004



<https://komisi-etika.rsmoewardi.com/kank/ethicalclearance/23175240A-0094>

### Lampiran 3. Surat keterangan hewan uji

#### "ABIMANYU FARM"

√ Mencit putih jantan    √ Tikus Wistar    √ Swis Webster    √ Cacing  
√ Mencit Balb/C    √ Kelinci New Zealand

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Ngampon RT 04 / RW 04. Mojosongo Kec. Jebres Surakarta. Phone 085 629 994 33 / Lab USB Ska

Yang bertanda tangan di bawah ini:

Nama : Sigit Pramono

Selaku pengelola Abimanyu Farm, menerangkan bahwa hewan uji yang digunakan untuk penelitian, oleh:

Nama : Putu Dyah Ayu Sekar Nindita

Nim : 23175240A

Institusi : Universitas Setia Budi Surakarta

Merupakan hewan uji dengan spesifikasi sebagai berikut:

Jenis hewan : Kelinci New Zealand

Umur : 2-3 bulan

Jenis kelamin : Jantan

Jumlah : 6 ekor

Keterangan : Sehat

Asal-usul : Unit Pengembangan Hewan Percobaan Boyolali

Yang pengembangan dan pengelolaannya disesuaikan standar baku penelitian. Demikian surat keterangan ini dibuat untuk digunakan sebagaimana mestinya.

Surakarta, 22 Maret 2021

Hormat kami



Sigit Pramono

"ABIMANYU FARM"

#### Lampiran 4. Perhitungan rendemen bobot kering terhadap bobot basah daun kemangi

$$\% \text{ Rendemen} : \frac{\text{Bobot kering (g)}}{\text{Bobot basah (g)}} \times 100\%$$

$$\% \text{ Rendemen} : \frac{800 \text{ g}}{6000 \text{ g}} \times 100\%$$

$$\% \text{ Rendemen} : 13\%$$

#### Lampiran 5. Perhitungan Lost on Drying serbuk daun kemangi

$$\% \text{ LOD} : \frac{\text{Bobot sebelum pengeringan} - \text{bobot sesudah pengeringan}}{\text{Bobot sebelum pengeringan}} \times 100\%$$

$$\% \text{ LOD} : \frac{6000 - 800}{6000} \times 100\%$$

$$\% \text{ LOD} : 86,67\%$$

#### Lampiran 6. Perhitungan rendemen ekstrak kental daun kemangi

$$\text{Bobot botol kosong} : 150,690 \text{ g}$$

$$\text{Botol + ekstrak} : 186 \text{ g}$$

$$\% \text{ Rendemen} : \frac{\text{Bobot ekstrak (g)}}{\text{Bobot serbuk (g)}} \times 100\%$$

$$\% \text{ Rendemen} : \frac{35,31 \text{ g}}{600 \text{ g}} \times 100\%$$

$$\% \text{ Rendemen} : 5,885\% \text{ (tidak kurang dari 5,6\% menurut FHI edisi II)}$$

**Lampiran 7. Hasil uji pH hari ke-1**

Replikasi	F1	F2	F3	K (-)
1	6,82	6,81	6,75	6,77
2	6,76	6,73	6,79	6,8
3	6,87	6,76	6,68	6,72
Rata-rata	6,82	6,77	6,74	6,76
SD	0,06	0,04	0,06	0,04
Rata-rata $\pm$ SD	6,82 $\pm$ 0,06	6,77 $\pm$ 0,04	6,74 $\pm$ 0,06	6,76 $\pm$ 0,04

**Lampiran 8. Hasil uji pH hari ke-21**

Replikasi	F1	F2	F3	K (-)
1	6,38	6,32	6,21	6,33
2	6,27	6,28	6,27	6,23
3	6,29	6,24	6,19	6,31
Rata-rata	6,31	6,28	6,22	6,29
SD	0,06	0,04	0,04	0,05
Rata-rata $\pm$ SD	6,31 $\pm$ 0,06	6,28 $\pm$ 0,04	6,22 $\pm$ 0,04	6,29 $\pm$ 0,05

## Lampiran 9. Hasil SPSS uji pH gel

### Descriptives

#### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
pH	24	6.19	6.87	6.5242	.25797
Valid N (listwise)	24				

#### Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for pH	.150	24	.173	.931	24	.104

a. Lilliefors Significance Correction

### Univariate Analysis of Variance

#### Between-Subjects Factors

	Value	Label	N
Formula	1.00	F1	6
	2.00	F2	6
	3.00	F3	6
	4.00	F4	6
Hari	1.00	Hari ke 1	12
	2.00	Hari ke 21	12



### Descriptive Statistics

Dependent Variable: *pH*

Formula	Hari	Mean	Std. Deviation	N
F1	Hari ke 1	6.8167	.05508	3
	Hari ke 21	6.3133	.05859	3
	Total	6.5650	.28034	6
F2	Hari ke 1	6.7667	.04041	3
	Hari ke 21	6.2800	.04000	3
	Total	6.5233	.26897	6
F3	Hari ke 1	6.7400	.05568	3
	Hari ke 21	6.2233	.04163	3
	Total	6.4817	.28639	6
F4	Hari ke 1	6.7633	.04041	3
	Hari ke 21	6.2900	.05292	3
	Total	6.5267	.26265	6
Total	Hari ke 1	6.7717	.05060	12
	Hari ke 21	6.2767	.05416	12
	Total	6.5242	.25797	24

### Levene's Test of Equality of Error

#### Variiances<sup>a</sup>

Dependent Variable: *pH*

F	df1	df2	Sig.
.259	7	16	.961

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Formula + Hari +  
Formula \* Hari

### Tests of Between-Subjects Effects

Dependent Variable: *pH*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.493 <sup>a</sup>	7	.213	89.941	.000
Intercept	1021.554	1	1021.554	430883.944	.000
Formula	.021	3	.007	2.936	.065
Hari	1.470	1	1.470	620.098	.000
Formula * Hari	.002	3	.001	.227	.876
Error	.038	16	.002		
Total	1023.085	24			
Corrected Total	1.531	23			

a. R Squared = .975 (Adjusted R Squared = .964)

**Lampiran 10. Uji daya lekat hari ke-1**

Formula	F1	F2	F3	K (-)
1	3,78	4,89	5,38	4,98
2	3,83	4,93	5,28	5,05
3	3,69	5,01	5,31	4,96
Rata-rata	3,77	4,94	5,32	5,00
SD	0,07	0,06	0,05	0,05
Rata-rata±SD	3,77±0,07	4,94±0,06	5,32±0,05	5,00±0,05

**Lampiran 11. Uji daya lekat hari ke-21**

Formula	F1	F2	F3	K (-)
1	3,56	4,76	5,28	4,9
2	3,58	4,69	5,21	4,83
3	3,47	4,64	5,18	4,78
Rata-rata	3,54	4,70	5,22	4,84
SD	0,06	0,06	0,05	0,06
Rata-rata±SD	3,56±0,04	4,70±0,06	5,22±0,05	4,84±0,06

### Lampiran 12. Hasil uji SPSS daya lekat gel

#### Descriptive Statistics

	N	Minimu m	Maximu m	Mean	Std. Deviation
DayaLekat	24	3.47	5.38	4.6654	.63189
Valid N (listwise)	24				

#### Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for DayaLekat	.156	24	.134	.905	24	.027

a. Lilliefors Significance Correction

#### NPar Tests

#### Descriptive Statistics

	N	Mean	Std. Deviation	Minimu m	Maximu m	Percentiles		
						25th	50th (Median)	75th
DayaLekat	24	4.6654	.63189	3.47	5.38	4.0325	4.8950	5.1475
Formula	24	2.5000	1.14208	1.00	4.00	1.2500	2.5000	3.7500
Hari	24	1.5000	.51075	1.00	2.00	1.0000	1.5000	2.0000

## Univariate Analysis of Variance

### Between-Subjects Factors

		Value Label	N
Formula	1.00	F1	6
	2.00	F2	6
	3.00	F3	6
	4.00	4.00	6
Hari	1.00	Hari ke 1	12
	2.00	Hari ke 21	12

### Tests of Between-Subjects Effects

Dependent Variable: DayaLekat

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.130 <sup>a</sup>	7	1.304	386.918	.000
Intercept	522.387	1	522.387	154972.570	.000
Formula	8.906	3	2.969	880.657	.000
Hari	.204	1	.204	60.372	.000
Formula * Hari	.021	3	.007	2.028	.150
Error	.054	16	.003		
Total	531.570	24			
Corrected Total	9.184	23			

a. R Squared = .994 (Adjusted R Squared = .992)

**Friedman Test****Ranks**

	Mean Rank
DayaLekat	3.00
Formula	1.75
Hari	1.25

**Test Statistics<sup>a</sup>**

N	24
Chi-Square	41.600
df	2
Asymp. Sig.	.000

a. Friedman Test

Lampiran 13. Uji daya sebar hari ke-1

Formula	Beban	Hasil	Rata-rata	SD	Rata-rata $\pm$ SD
F1	50	5,20 5,20 5,10	5,167	0,058	5,17 $\pm$ 0,06
	100	5,40 5,80 5,37	5,523	0,240	5,52 $\pm$ 0,24
	150	5,37 5,77 5,70	5,733	0,035	5,73 $\pm$ 0,04
	200	6,07 6,10 6,03	6,067	0,035	6,06 $\pm$ 0,04
F2	50	5,07 5,13 4,90	5,033	0,119	5,03 $\pm$ 0,12
	100	5,17 5,30 5,10	5,190	0,101	5,19 $\pm$ 0,10
	150	5,33 5,40 5,23	5,320	0,085	5,32 $\pm$ 0,09
	200	5,90 5,87 5,83	5,867	0,035	5,87 $\pm$ 0,04

<b>Formula</b>	<b>Beban</b>	<b>Hasil</b>	<b>Rata-rata</b>	<b>SD</b>	<b>Rata-rata <math>\pm</math> SD</b>
F3	50	4,00 4,10 4,10	4,067	0,058	4,07 $\pm$ 0,06
	100	4,93 5,00 4,80	4,910	0,101	4,91 $\pm$ 0,10
	150	5,07 5,17 4,97	5,070	0,100	5,07 $\pm$ 0,10
	200	5,27 5,33 5,20	5,267	0,065	5,27 $\pm$ 0,07
K (-)	50	5,17 5,13 5,13	5,143	0,023	5,14 $\pm$ 0,02
	100	5,30 5,27 5,23	5,267	0,035	5,27 $\pm$ 0,04
	150	5,53 5,93 5,37	5,610	0,288	5,61 $\pm$ 0,29
	200	5,80 6,13 5,70	5,877	0,225	5,88 $\pm$ 0,23



**Lampiran 14. Uji daya sebar hari ke-21**

Formula	Beban	Hasil	Rata-rata	SD	Rata-rata $\pm$ SD
F1	50	6,00 6,10 6,07	6,06	0,05	6,06 $\pm$ 0,05
	100	6,13 6,33 6,40	6,29	0,14	6,29 $\pm$ 0,14
	150	6,43 6,53 6,63	6,53	0,10	6,53 $\pm$ 0,10
	200	6,63 6,70 6,80	6,71	0,09	6,71 $\pm$ 0,09
F2	50	4,90 5,13 4,93	4,99	0,13	4,99 $\pm$ 0,13
	100	5,07 5,33 5,10	5,17	0,14	5,17 $\pm$ 0,14
	150	5,27 5,37 5,33	5,32	0,05	5,32 $\pm$ 0,05
	200	5,57 5,60 5,63	5,60	0,03	5,60 $\pm$ 0,03

F3	50	2,93 3,00 3,00	2,98	0,04	2,98±0,04
	100	3,00 3,13 3,20	3,11	0,10	3,11±0,10
	150	3,20 3,40 3,43	3,34	0,13	3,34±0,13
	200	3,37 3,53 3,57	3,49	0,11	3,49±0,11
K (-)	50	5,20 5,20 5,17	5,19	0,02	5,19±0,02
	100	5,23 5,30 5,30	5,28	0,04	5,28±0,04
	150	5,70 5,67 5,47	5,61	0,13	5,61±0,13
	200	5,83 6,10 5,77	5,90	0,18	5,90±0,18

### Lampiran 15. Hasil SPSS uji daya sebar

#### Descriptives

##### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DayaSebar	32	2.61	6.73	5.0209	1.27830
Valid N (listwise)	32				

##### Tests of Normality

	Hari	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
DayaSebar	Hari ke 1	.213	16	.051	.897	16	.073
	Hari ke 21	.215	16	.047	.887	16	.049

a. Lilliefors Significance Correction

##### Test of Homogeneity of Variance

	Levene Statistic	df1	df2	Sig.
DayaSebar Based on Mean	.526	1	30	.474
Based on Median	.297	1	30	.590
Based on Median and with adjusted df	.297	1	29.892	.590
Based on trimmed mean	.497	1	30	.486

### Multiple Comparisons

Dependent Variable: DayaSebar

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
F1	F2	1.1050*	.28763	.004	.3116	1.8984
	F3	3.1700*	.28763	.000	2.3766	3.9634
	F4	1.3063*	.28763	.001	.5128	2.0997
F2	F1	-1.1050*	.28763	.004	-1.8984	-.3116
	F3	2.0650*	.28763	.000	1.2716	2.8584
	F4	.2013	.28763	.896	-.5922	.9947
F3	F1	-3.1700*	.28763	.000	-3.9634	-2.3766
	F2	-2.0650*	.28763	.000	-2.8584	-1.2716
	F4	-1.8637*	.28763	.000	-2.6572	-1.0703
F4	F1	-1.3063*	.28763	.001	-2.0997	-.5128
	F2	-.2013	.28763	.896	-.9947	.5922
	F3	1.8637*	.28763	.000	1.0703	2.6572

Based on observed means.

The error term is Mean Square(Error) = .331.

\*. The mean difference is significant at the ,05 level.

### Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
DayaSebar	32	5.0209	1.27830	2.61	6.73	3.4925	5.2750	6.0200
Formula	32	2.5000	1.13592	1.00	4.00	1.2500	2.5000	3.7500
Hari	32	1.5000	.50800	1.00	2.00	1.0000	1.5000	2.0000

### Friedman Test

#### Ranks

	Mean Rank
DayaSebar	2.94
Formula	1.81
Hari	1.25

### Test Statistics<sup>a</sup>

N	32
Chi-Square	50.400
df	2
Asymp. Sig.	.000

a. Friedman Test

**Lampiran 16. Hasil uji viskositas hari ke-1**

Replikasi	F1	F2	F3	K (-)
1	150	300	350	290
2	170	250	330	250
3	180	250	320	250
Rata-rata	166,7	266,7	333,3	280,0
SD	15,28	28,87	15,28	26,46
Rata-rata±SD	166,7±15,28	266,7±28,87	333,3±15,28	280,0±26,46

**Lampiran 17. Hasil uji viskositas hari ke-21**

Replikasi	F1	F2	F3	K (-)
1	160	260	300	280
2	180	250	320	260
3	160	270	320	260
Rata-rata	166,7	260,0	313,3	266,7
SD	11,55	10,00	11,55	11,55
Rata-rata±SD	166,7±11,55	260,0±10,00	313,3±11,55	266,7±11,55

### Lampiran 18. Hasil SPSS uji viskositas gel

#### Descriptives

##### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Viskositas	24	150.00	350.00	256.6667	60.12065
Valid N (listwise)	24				

##### Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for Viskositas	.133	24	.200*	.976	24	.803

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

a. Lilliefors Significance Correction

##### Between-Subjects Factors

	Value Label	N
Formulasi	1.00 F1	6
	2.00 F2	6
	3.00 F3	6
	4.00 F4	6
Hari	1.00 Hari ke 1	12
	2.00 Hari ke 21	12

##### Descriptive Statistics

Dependent Variable: Viskositas

Formulasi	Hari	Mean	Std. Deviation	N
F1	Hari ke 1	166.6667	15.27525	3
	Hari ke 21	166.6667	11.54701	3
	Total	166.6667	12.11060	6
F2	Hari ke 1	266.6667	28.86751	3
	Hari ke 21	260.0000	10.00000	3
	Total	263.3333	19.66384	6
F3	Hari ke 1	333.3333	15.27525	3
	Hari ke 21	313.3333	11.54701	3
	Total	323.3333	16.32993	6
F4	Hari ke 1	280.0000	26.45751	3
	Hari ke 21	266.6667	11.54701	3
	Total	273.3333	19.66384	6
Total	Hari ke 1	261.6667	65.75897	12
	Hari ke 21	251.6667	56.38074	12
	Total	256.6667	60.12065	24

### Levene's Test of Equality of Error Variances<sup>a</sup>

Dependent Variable: Viskositas

F	df1	df2	Sig.
2.124	7	16	.101

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Formulasi + Hari + Formulasi \* Hari



### Tests of Between-Subjects Effects

Dependent Variable: Viskositas

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	78133.333 <sup>a</sup>	7	11161.905	35.718	.000
Intercept	1581066.667	1	1581066.667	5059.413	.000
Formulasi	77200.000	3	25733.333	82.347	.000
Hari	600.000	1	600.000	1.920	.185
Formulasi * Hari	333.333	3	111.111	.356	.786
Error	5000.000	16	312.500		
Total	1664200.000	24			
Corrected Total	83133.333	23			

a. R Squared = .940 (Adjusted R Squared = .914)

### Multiple Comparisons

Dependent Variable: Viskositas

Tukey HSD

(I) Formulasi	(J) Formulasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
F1	F2	-96.6667*	10.2062 1	.000	-125.8668	-67.4665
	F3	-156.6667*	10.2062 1	.000	-185.8668	-127.4665
	F4	-106.6667*	10.2062 1	.000	-135.8668	-77.4665
F2	F1	96.6667*	10.2062 1	.000	67.4665	125.8668
	F3	-60.0000*	10.2062 1	.000	-89.2002	-30.7998
	F4	-10.0000	10.2062 1	.763	-39.2002	19.2002
F3	F1	156.6667*	10.2062 1	.000	127.4665	185.8668
	F2	60.0000*	10.2062 1	.000	30.7998	89.2002
	F4	50.0000*	10.2062 1	.001	20.7998	79.2002
F4	F1	106.6667*	10.2062 1	.000	77.4665	135.8668
	F2	10.0000	10.2062 1	.763	-19.2002	39.2002
	F3	-50.0000*	10.2062 1	.001	-79.2002	-20.7998

Based on observed means.

The error term is Mean Square(Error) = 312.500.

\*, The mean difference is significant at the ,05 level.

**Lampiran 19. Hasil stabilitas *pH* (sebelum di *freezer thaw*)**

Replikasi	F1	F2	F3	K (-)
1	6,82	6,81	6,75	6,77
2	6,76	6,73	6,79	6,8
3	6,87	6,76	6,68	6,72
Rata-rata	6,82	6,77	6,74	6,76
SD	0,06	0,04	0,06	0,04

**Lampiran 20. Hasil stabilitas *pH* (setelah di *freezer thaw*)**

Replikasi	F1	F2	F3	K (-)
1	6,34	6,32	6,21	6,31
2	6,28	6,26	6,28	6,23
3	6,25	6,24	6,2	6,29
Rata-rata	6,30	6,27	6,23	6,28
SD	0,06	0,04	0,04	0,04

## Lampiran 21. Hasil SPSS uji stabilitas $pH$

### Descriptives

#### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
$pH$	24	6.20	6.87	6.5196	.26163
Valid N (listwise)	24				

#### Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for $pH$	.141	24	.200*	.918	24	.053

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

a. Lilliefors Significance Correction

#### Between-Subjects Factors

	Value Label	N
Formula	1.00 F1	6
	2.00 F2	6
	3.00 F3	6
	4.00 F4	6
Hari	1.00 SEBELUM	12
	2.00 SESUDAH	12

### Descriptive Statistics

Dependent Variable: *pH*

Formula	Hari	Mean	Std. Deviation	N
F1	SEBELU M	6.8167	.05508	3
	SESUDA H	6.2900	.04583	3
	Total	6.5533	.29200	6
F2	SEBELU M	6.7667	.04041	3
	SESUDA H	6.2733	.04163	3
	Total	6.5200	.27269	6
F3	SEBELU M	6.7400	.05568	3
	SESUDA H	6.2300	.04359	3
	Total	6.4850	.28290	6
F4	SEBELU M	6.7633	.04041	3
	SESUDA H	6.2767	.04163	3
	Total	6.5200	.26907	6
Total	SEBELU M	6.7717	.05060	12
	SESUDA H	6.2675	.04372	12
	Total	6.5196	.26163	24

### Levene's Test of Equality of Error

#### Variiances<sup>a</sup>

Dependent Variable: *pH*

F	df1	df2	Sig.
.108	7	16	.997

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Formula + Hari + Formula \* Hari

### Tests of Between-Subjects Effects

Dependent Variable: *pH*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.541 <sup>a</sup>	7	.220	104.386	.000
Intercept	1020.119	1	1020.119	483851.006	.000
Formula	.014	3	.005	2.215	.126
Hari	1.525	1	1.525	723.370	.000
Formula * Hari	.001	3	.000	.229	.875
Error	.034	16	.002		
Total	1021.694	24			
Corrected Total	1.574	23			

a. R Squared = .979 (Adjusted R Squared = .969)

### Multiple Comparisons

Dependent Variable: *pH*

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
F1	F2	.0333	.02651	.601	-.0425	.1092
	F3	.0683	.02651	.085	-.0075	.1442
	F4	.0333	.02651	.601	-.0425	.1092
F2	F1	-.0333	.02651	.601	-.1092	.0425
	F3	.0350	.02651	.564	-.0408	.1108
	F4	.0000	.02651	1.000	-.0758	.0758
F3	F1	-.0683	.02651	.085	-.1442	.0075
	F2	-.0350	.02651	.564	-.1108	.0408
	F4	-.0350	.02651	.564	-.1108	.0408
F4	F1	-.0333	.02651	.601	-.1092	.0425
	F2	.0000	.02651	1.000	-.0758	.0758
	F3	.0350	.02651	.564	-.0408	.1108

Based on observed means.

The error term is Mean Square(Error) = .002.

**Lampiran 22. Hasil stabilitas viskositas (sebelum di *freezer thaw*)**

Replikasi	F1	F2	F3	K (-)
1	150	300	350	290
2	170	250	330	250
3	180	250	320	250
Rata-rata	166,7	266,7	333,3	280,0
SD	15,28	28,87	15,28	26,46

**Lampiran 23. Hasil stabilitas viskositas (setelah di *freezer thaw*)**

Replikasi	F1	F2	F3	K (-)
1	160	260	320	260
2	160	250	300	240
3	150	260	300	290
Rata-rata	156,7	256,7	306,7	263,3
SD	5,77	5,77	11,55	25,17



## Lampiran 24. Hasil SPSS uji stabilitas viskositas

### Descriptives

#### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Viskositas	24	150.00	350.00	253.7500	61.48966
Valid N (listwise)	24				

#### Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for Viskositas	.124	24	.200*	.982	24	.930

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

a. Lilliefors Significance Correction

#### Between-Subjects Factors

	Value Label	N
Formula	1.00 F1	6
	2.00 F2	6
	3.00 F3	6
	4.00 F4	6
Hari	1.00 Hari ke 1	12
	2.00 Hari ke 21	12

### Descriptive Statistics

Dependent Variable: Viskositas

Formula	Hari	Mean	Std. Deviation	N
F1	Hari ke 1	166.6667	15.27525	3
	Hari ke 21	156.6667	5.77350	3
	Total	161.6667	11.69045	6
F2	Hari ke 1	266.6667	28.86751	3
	Hari ke 21	256.6667	5.77350	3
	Total	261.6667	19.40790	6
F3	Hari ke 1	333.3333	15.27525	3
	Hari ke 21	306.6667	11.54701	3
	Total	320.0000	18.97367	6
F4	Hari ke 1	280.0000	26.45751	3
	Hari ke 21	263.3333	25.16611	3
	Total	271.6667	24.83277	6
Total	Hari ke 1	261.6667	65.75897	12
	Hari ke 21	245.8333	58.69154	12
	Total	253.7500	61.48966	24

### Levene's Test of Equality of Error

#### Variiances<sup>a</sup>

Dependent Variable: Viskositas

F	df1	df2	Sig.
2.371	7	16	.072

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Formula + Hari + Formula \* Hari

### Tests of Between-Subjects Effects

Dependent Variable: Viskositas

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	81295.833 <sup>a</sup>	7	11613.690	32.792	.000
Intercept	1545337.500	1	1545337.500	4363.306	.000
Formula	79512.500	3	26504.167	74.835	.000
Hari	1504.167	1	1504.167	4.247	.056
Formula * Hari	279.167	3	93.056	.263	.851
Error	5666.667	16	354.167		
Total	1632300.000	24			
Corrected Total	86962.500	23			

a. R Squared = .935 (Adjusted R Squared = .906)

### Multiple Comparisons

Dependent Variable: Viskositas

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
F1	F2	-100.0000*	10.8653 4	.000	-131.0859	-68.9141
	F3	-158.3333*	10.8653 4	.000	-189.4193	-127.2474
	F4	-110.0000*	10.8653 4	.000	-141.0859	-78.9141
F2	F1	100.0000*	10.8653 4	.000	68.9141	131.0859
	F3	-58.3333*	10.8653 4	.000	-89.4193	-27.2474
	F4	-10.0000	10.8653 4	.794	-41.0859	21.0859
F3	F1	158.3333*	10.8653 4	.000	127.2474	189.4193
	F2	58.3333*	10.8653 4	.000	27.2474	89.4193
	F4	48.3333*	10.8653 4	.002	17.2474	79.4193
F4	F1	110.0000*	10.8653 4	.000	78.9141	141.0859
	F2	10.0000	10.8653 4	.794	-21.0859	41.0859
	F3	-48.3333*	10.8653 4	.002	-79.4193	-17.2474

Based on observed means.

The error term is Mean Square(Error) = 354.167.

\*. The mean difference is significant at the ,05 level.

**Lampiran 25. Hasil pengujian nilai *Sun protection factor* (SPF)**

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
Ekstrak	290	0,5205	0,0150	0,0078
	295	0,4057	0,0817	0,0331
	300	0,3258	0,2874	0,0936
	305	0,3130	0,3278	0,1026
	310	0,3768	0,1864	0,0702
	315	0,5062	0,0837	0,0424
	320	0,6239	0,0180	0,0112
			Jumlah	0,3610
			Faktor Pengenceran	10
			Nilai SPF	36,10

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
Ekstrak	290	0,5528	0,0150	0,0083
	295	0,4041	0,0817	0,0330
	300	0,3258	0,2874	0,0936
	305	0,3121	0,3278	0,1023
	310	0,3779	0,1864	0,0704
	315	0,5014	0,0837	0,0420
	320	0,6193	0,0180	0,0111
			Jumlah	0,3608
			Faktor Pengenceran	10
			Nilai SPF	36,08

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
Ekstrak	290	0,5228	0,0150	0,0078
	295	0,4055	0,0817	0,0331
	300	0,3261	0,2874	0,0937
	305	0,3123	0,3278	0,1024
	310	0,3804	0,1864	0,0709
	315	0,502	0,0837	0,0420
	320	0,622	0,0180	0,0112
			Jumlah	0,3612
			Faktor Pengenceran	10
			Nilai SPF	36,12

Rata-Rata Ekstrak =

$\frac{\text{Replikasi 1} + \text{Replikasi 2} + \text{Replikasi 3}}{3}$

$$= \frac{36,10 + 36,08 + 36,12}{3}$$

$$= 36,10$$

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
Kontrol (+)	290	0,4282	0,0150	0,0064
	295	0,4295	0,0817	0,0351
	300	0,4262	0,2874	0,1225
	305	0,4663	0,3278	0,1529
	310	0,5470	0,1864	0,1020
	315	0,5910	0,0837	0,0495
	320	0,5619	0,0180	0,0101
			Jumlah	0,4784
			Faktor Pengenceran	5
			Nilai SPF	23,92

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
Kontrol (+)	290	0,4309	0,0150	0,0065
	295	0,4300	0,0817	0,0351
	300	0,4269	0,2874	0,1227
	305	0,4606	0,3278	0,1510
	310	0,5497	0,1864	0,1025
	315	0,5901	0,0837	0,0494
	320	0,5591	0,0180	0,0101
			Jumlah	0,4772
			Faktor Pengenceran	5
			Nilai SPF	23,86

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
Kontrol (+)	290	0,4276	0,0150	0,0064
	295	0,4352	0,0817	0,0356
	300	0,4262	0,2874	0,1225
	305	0,4642	0,3278	0,1522
	310	0,550	0,1864	0,1025
	315	0,5935	0,0837	0,0497
	320	0,5601	0,0180	0,0101
Jumlah				0,4789
Faktor Pengenceran				5
Nilai SPF				23,95

Rata-Rata kontrol (+) =

$\frac{\text{Replikasi 1} + \text{Replikasi 2} + \text{Replikasi 3}}{3}$

$$= \frac{23,92+23,86+23,95}{3}$$

= 23,91



Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
F1	290	0,3819	0,0150	0,0057
	295	0,3403	0,0817	0,0278
	300	0,3268	0,2874	0,0939
	305	0,3187	0,3278	0,1045
	310	0,3085	0,1864	0,0575
	315	0,3012	0,0837	0,0252
	320	0,2981	0,0180	0,0054
			Jumlah	0,3200
			Faktor Pengenceran	5
			Nilai SPF	16,00

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
F1	290	0,3850	0,0150	0,0058
	295	0,3427	0,0817	0,0280
	300	0,3288	0,2874	0,0945
	305	0,3208	0,3278	0,1052
	310	0,3111	0,1864	0,0580
	315	0,3031	0,0837	0,0254
	320	0,2994	0,0180	0,0054
			Jumlah	0,3222
			Faktor Pengenceran	5
			Nilai SPF	16,11

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
F1	290	0,3862	0,0150	0,0058
	295	0,3437	0,0817	0,0281
	300	0,3302	0,2874	0,0949
	305	0,3225	0,3278	0,1057
	310	0,3122	0,1864	0,0582
	315	0,3040	0,0837	0,0254
	320	0,3009	0,0180	0,0054
			Jumlah	0,3235
			Faktor Pengenceran	5
			Nilai SPF	16,18

Rata-rata Formula I =

*Replikasi 1 + Replikasi 2 + Replikasi 3*

3

$$= \frac{16,00+16,11+16,18}{3}$$

$$= 16,10$$

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
F2	290	0,2978	0,0150	0,0045
	295	0,3183	0,0817	0,0260
	300	0,3305	0,2874	0,0950
	305	0,3391	0,3278	0,1112
	310	0,3453	0,1864	0,0644
	315	0,3208	0,0837	0,0269
	320	0,2742	0,0180	0,0049
			Jumlah	0,3328
			Faktor Pengenceran	5
			Nilai SPF	16,64

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
F2	290	0,3004	0,0150	0,0045
	295	0,3206	0,0817	0,0262
	300	0,3331	0,2874	0,0957
	305	0,3416	0,3278	0,1120
	310	0,3478	0,1864	0,0648
	315	0,3233	0,0837	0,0271
	320	0,2765	0,0180	0,0050
			Jumlah	0,3353
			Faktor Pengenceran	5
			Nilai SPF	16,76

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
F2	290	0,3004	0,0150	0,0045
	295	0,321	0,0817	0,0262
	300	0,3334	0,2874	0,0958
	305	0,3418	0,3278	0,1120
	310	0,3478	0,1864	0,0648
	315	0,3237	0,0837	0,0271
	320	0,4739	0,0180	0,0085
			Jumlah	0,3390
			Faktor Pengenceran	5
			Nilai SPF	16,95

Rata-rata formula 2 =

$\frac{\text{Replikasi 1} + \text{Replikasi 2} + \text{Replikasi 3}}{3}$

$$= \frac{16,64 + 16,76 + 16,95}{3}$$

$$= 16,78$$

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
F3	290	0,3842	0,0150	0,0058
	295	0,3649	0,0817	0,0298
	300	0,3582	0,2874	0,1029
	305	0,3515	0,3278	0,1152
	310	0,3468	0,1864	0,0646
	315	0,3401	0,0837	0,0285
	320	0,3284	0,0180	0,0059
			Jumlah	0,3528
			Faktor Pengenceran	5
			Nilai SPF	17,64

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
F3	290	0,3833	0,0150	0,0057
	295	0,3635	0,0817	0,0297
	300	0,3567	0,2874	0,1025
	305	0,3498	0,3278	0,1147
	310	0,3456	0,1864	0,0644
	315	0,3388	0,0837	0,0284
	320	0,327	0,0180	0,0059
			Jumlah	0,3513
			Faktor Pengenceran	5
			Nilai SPF	17,56

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
F3	290	0,3827	0,0150	0,0057
	295	0,3634	0,0817	0,0297
	300	0,3559	0,2874	0,1023
	305	0,3500	0,3278	0,1147
	310	0,3458	0,1864	0,0645
	315	0,3388	0,0837	0,0284
	320	0,3270	0,0180	0,0059
			Jumlah	0,3511
			Faktor Pengenceran	5
			Nilai SPF	17,56

Rata-rata formula 3 =

*Replikasi 1 + Replikasi 2 + Replikasi 3*

3

$$= \frac{17,64+17,56+17,56}{3}$$

$$= 17,59$$

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
F4	290	0,3018	0,0150	0,0045
	295	0,2838	0,0817	0,0232
	300	0,2775	0,2874	0,0798
	305	0,2735	0,3278	0,0897
	310	0,2693	0,1864	0,0502
	315	0,2619	0,0837	0,0219
	320	0,2525	0,0180	0,0045
			Jumlah	0,2738
			Faktor Pengenceran	1
			Nilai SPF	2,74

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
F4	290	0,3010	0,0150	0,0045
	295	0,2826	0,0817	0,0231
	300	0,2766	0,2874	0,0795
	305	0,2724	0,3278	0,0893
	310	0,2679	0,1864	0,0499
	315	0,2607	0,0837	0,0218
	320	0,2514	0,0180	0,0045
			Jumlah	0,2727
			Faktor Pengenceran	1
			Nilai SPF	2,73

Formula	Panjang gelombang	Absorbansi	EE X I	Hasil
F4	290	0,3003	0,0150	0,0045
	295	0,2823	0,0817	0,0231
	300	0,276	0,2874	0,0793
	305	0,272	0,3278	0,0892
	310	0,2678	0,1864	0,0499
	315	0,2605	0,0837	0,0218
	320	0,2508	0,0180	0,0045
			Jumlah	0,2723
			Faktor Pengenceran	1
			Nilai SPF	2,72

Rata-rata formula 4 =

*Replikasi 1 + Replikasi 2 + Replikasi 3*

3

$$= \frac{2,74+2,73+2,72}{3}$$

$$= 2,73$$



## Lampiran 26. Hasil SPSS nilai SPF

### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SPF	18	2.72	36.12	18.8678	10.25979
Valid N (listwise)	18				

### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
SPF	18	100.0%	0	.0%	18	100.0%

### Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SPF	.223	18	.018	.875	18	.022

a. Lilliefors Significance Correction

### Test of Homogeneity of Variances

SPF

Levene Statistic	df1	df2	Sig.
3.060	5	12	.052

### ANOVA

SPF

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1789.400	5	357.880	57413.894	.000
Within Groups	.075	12	.006		
Total	1789.475	17			

### Multiple Comparisons

SPF

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I- J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
ekstrak	K(+)	12.19000*	.06446	.000	11.9735	12.4065
	F1	20.00333*	.06446	.000	19.7868	20.2199
	F2	19.31667*	.06446	.000	19.1001	19.5332
	F3	18.51333*	.06446	.000	18.2968	18.7299
	F4	33.37000*	.06446	.000	33.1535	33.5865
K(+)	ekstrak	-12.19000*	.06446	.000	-12.4065	-11.9735
	F1	7.81333*	.06446	.000	7.5968	8.0299
	F2	7.12667*	.06446	.000	6.9101	7.3432
	F3	6.32333*	.06446	.000	6.1068	6.5399
	F4	21.18000*	.06446	.000	20.9635	21.3965
F1	ekstrak	-20.00333*	.06446	.000	-20.2199	-19.7868
	K(+)	-7.81333*	.06446	.000	-8.0299	-7.5968
	F2	-.68667*	.06446	.000	-.9032	-.4701
	F3	-1.49000*	.06446	.000	-1.7065	-1.2735
	F4	13.36667*	.06446	.000	13.1501	13.5832
F2	ekstrak	-19.31667*	.06446	.000	-19.5332	-19.1001
	K(+)	-7.12667*	.06446	.000	-7.3432	-6.9101
	F1	.68667*	.06446	.000	.4701	.9032
	F3	-.80333*	.06446	.000	-1.0199	-.5868
	F4	14.05333*	.06446	.000	13.8368	14.2699

F3	ekstrak	-18.51333*	.06446	.000	-18.7299	-18.2968
	K(+)	-6.32333*	.06446	.000	-6.5399	-6.1068
	F1	1.49000*	.06446	.000	1.2735	1.7065
	F2	.80333*	.06446	.000	.5868	1.0199
	F4	14.85667*	.06446	.000	14.6401	15.0732
F4	ekstrak	-33.37000*	.06446	.000	-33.5865	-33.1535
	K(+)	-21.18000*	.06446	.000	-21.3965	-20.9635
	F1	-13.36667*	.06446	.000	-13.5832	-13.1501
	F2	-14.05333*	.06446	.000	-14.2699	-13.8368
	F3	-14.85667*	.06446	.000	-15.0732	-14.6401

\*. The mean difference is significant at the 0.05 level.

### Homogeneous Subsets

#### SPF

Tukey HSD<sup>a</sup>

Formula	N	Subset for $\alpha_{Ha} = 0.05$					
		1	2	3	4	5	6
F4	3	2.7300					
F1	3		16.0967				
F2	3			16.7833			
F3	3				17.5867		
K(+)	3					23.9100	
ekstrak	3						36.1000
Sig.		1.000	1.000	1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

### Kruskal-Wallis Test

#### Ranks

	Formula	N	Mean Rank
SPF	ekstrak	3	17.00
	K(+)	3	14.00
	F1	3	5.00
	F2	3	8.00
	F3	3	11.00
	F4	3	2.00
	Total	18	

#### Test Statistics<sup>a,b</sup>

	SPF
Chi-Square	16.596
df	5
Asymp. Sig.	.005

a. Kruskal Wallis Test

b. Grouping Variable:  
Formula

### Nonparametric Tests

#### Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of SPF is the same across categories of Formula.	Independent-Samples Kruskal-Wallis Test	.005	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

**Mann-Whitney Test**

Ranks				
FORMULA	N	Mean Rank	Sum of Ranks	
SPF EKSTRAK	3	5,00	15,00	
KONTROL +	3	2,00	6,00	
Total	6			

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6,000
Z		-1,964
Asymp. Sig. (2-tailed)		0,049535
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
FORMULA	N	Mean Rank	Sum of Ranks	
SPF EKSTRAK	3	5,00	15,00	
F1	3	2,00	6,00	
Total	6			

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6,000
Z		-1,964
Asymp. Sig. (2-tailed)		0,049535
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
FORMULA	N	Mean Rank	Sum of Ranks	
SPF EKSTRAK	3	5,00	15,00	
F2	3	2,00	6,00	
Total	6			

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6,000
Z		-1,964
Asymp. Sig. (2-tailed)		0,049535
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
FORMULA	N	Mean Rank	Sum of Ranks	
SPF EKSTRAK	3	5,00	15,00	
F3	3	2,00	6,00	
Total	6			

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6,000
Z		-1,993
Asymp. Sig. (2-tailed)		0,046302
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
FORMULA	N	Mean Rank	Sum of Ranks	
SPF EKSTRAK	3	5,00	15,00	
F4	3	2,00	6,00	
Total	6			

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6,000
Z		-1,964
Asymp. Sig. (2-tailed)		0,049535
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
FORMULA	N	Mean Rank	Sum of Ranks	
SPF KONTROL +	3	5,00	15,00	
F1	3	2,00	6,00	
Total	6			

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6,000
Z		-1,964
Asymp. Sig. (2-tailed)		0,049535
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
FORMULA	N	Mean Rank	Sum of Ranks	
SPF KONTROL +	3	5,00	15,00	
F2	3	2,00	6,00	
Total	6			

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6,000
Z		-1,964
Asymp. Sig. (2-tailed)		0,049535
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
FORMULA	N	Mean Rank	Sum of Ranks	
SPF KONTROL +	3	5,00	15,00	
F3	3	2,00	6,00	
Total	6			

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
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Asymp. Sig. (2-tailed)		0,046302
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a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
FORMULA	N	Mean Rank	Sum of Ranks	
SPF KONTROL +	3	5,00	15,00	
F4	3	2,00	6,00	
Total	6			

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6,000
Z		-1,964
Asymp. Sig. (2-tailed)		0,049535
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
FORMULA	N	Mean Rank	Sum of Ranks	
SPF F1	3	2,00	6,00	
F2	3	5,00	15,00	
Total	6			

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6,000
Z		-1,964
Asymp. Sig. (2-tailed)		0,049535
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
	FORMULA	N	Mean Rank	Sum of Ranks
SPF	F1	3	2.00	6.00
	F3	3	5.00	15.00
	Total	6		

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6.000
Z		-1.993
Asymp. Sig. (2-tailed)		0.046302
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
	FORMULA	N	Mean Rank	Sum of Ranks
SPF	F1	3	5.00	15.00
	F4	3	2.00	6.00
	Total	6		

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6.000
Z		-1.964
Asymp. Sig. (2-tailed)		0.049535
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
	FORMULA	N	Mean Rank	Sum of Ranks
SPF	F2	3	2.00	6.00
	F3	3	5.00	15.00
	Total	6		

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6.000
Z		-1.993
Asymp. Sig. (2-tailed)		0.046302
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
	FORMULA	N	Mean Rank	Sum of Ranks
SPF	F2	3	5.00	15.00
	F4	3	2.00	6.00
	Total	6		

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6.000
Z		-1.964
Asymp. Sig. (2-tailed)		0.049535
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Mann-Whitney Test**

Ranks				
	FORMULA	N	Mean Rank	Sum of Ranks
SPF	F3	3	5.00	15.00
	F4	3	2.00	6.00
	Total	6		

Test Statistics <sup>a</sup>		SPF
Mann-Whitney U		.000
Wilcoxon W		6.000
Z		-1.993
Asymp. Sig. (2-tailed)		0.046302
Exact Sig. [2*(1-tailed Sig.)]		.100 <sup>b</sup>

a. Grouping Variable: FORMULA  
b. Not corrected for ties.

**Rangkuman uji Mann-Whitney**

perlakuan	Ekstrak	K (+)	F1	F2	F3	K(-)
Ekstrak		0,0493	0,0493	0,0493	0.046	0,0493
K (+)	0,0493		0,0493	0,0493	0.046	0,0493
F1	0,0493	0,0493		0,0493	0.046	0,0493
F2	0,0493	0,0493	0.0493		0.0463	0,0493
F3	0,0493	0,0463	0,0463	0,0463		0.0463
K(-)	0,0493	0,0493	0,0493	0,0493	0.0463	

**Lampiran 27. Hasil pengujian eritema pada kelinci**

Perlakuan	Hasil luas eritema (mm)	Rata-rata	SD	Rata-rata $\pm$ SD
Formula I	0	0	0	0
Formula II	0	0	0	0
Formula III	0	0	0	0
Formula IV	1 2 2	1,67	0,577	1,67 $\pm$ 0,57
Kontrol (+)	1 1	1,00	0,00	1,00 $\pm$ 0,00
Kontrol normal	3 4 3 2 5	3,40	1,140	3,40 $\pm$ 1,14

**Lampiran 28. Tanaman daun kemangi segar dan proses maserasi**

Daun kemangi segar



Proses pengovenan daun kemangi



Daun kemangi kering



Proses penggilingan daun kemangi kering



Serbuk daun kemangi



Proses maserasi





Proses penyaringan



Susut pengeringan



Proses evaporasi



Ekstrak kental

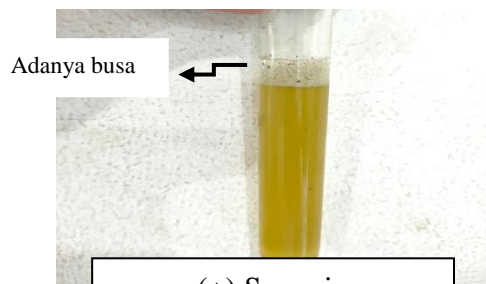
**Lampiran 29. Hasil uji identifikasi kandungan kimia ekstrak etanol daun kemangi**



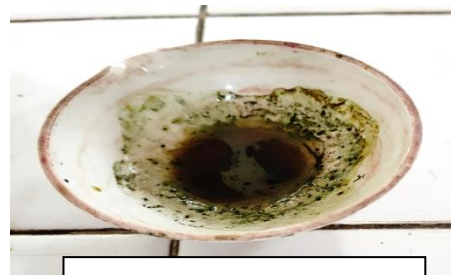
(+) tanin dan flavonoid



(-) Alkaloid

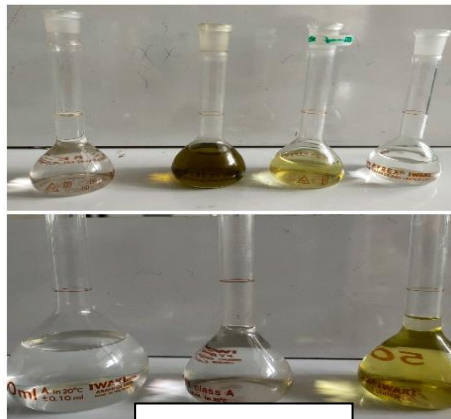


(+) Saponin



(+) Steroid

### Lampiran 30. Hasil orientasi kontrol positif, ekstrak dan gel



Pengenceran

RawData ...	RawData ...	RawData ...
0.5205	0.5228	0.5228
0.4057	0.4041	0.4055
0.3258	0.3258	0.3261
0.3130	0.3121	0.3123
0.3768	0.3779	0.3804
0.5062	0.5014	0.5020
0.6239	0.6193	0.6220

**Ekstrak**  
pengenceran 10x (1 ml ke LT 10)

Nilai abs ekstrak

RawData ...	RawData ...	RawData ...
0.3819	0.3850	0.3862
0.3403	0.3427	0.3437
0.3268	0.3288	0.3302
0.3187	0.3208	0.3225
0.3085	0.3111	0.3122
0.3012	0.3031	0.3040
0.2981	0.2994	0.3009

**Carbopol 0.5 gram**  
pengenceran 5x (2 ml ke LT 10)

Nilai abs gel 0,5 gram

RawData ...	RawData ...	RawData ...
0.2978	0.3004	0.3004
0.3183	0.3206	0.3210
0.3305	0.3331	0.3334
0.3391	0.3416	0.3418
0.3453	0.3478	0.3478
0.3208	0.3233	0.3237
0.2742	0.2765	0.2765

**Carbopol 1 gram**  
pengenceran 5x (2 ml ke LT 10)

Nilai abs gel 1 gram

RawData ...	RawData ...	RawData ...
0.3842	0.3833	0.3827
0.3649	0.3635	0.3634
0.3582	0.3567	0.3559
0.3513	0.3498	0.3500
0.3468	0.3456	0.3458
0.3401	0.3388	0.3380
0.3284	0.3270	0.3270

**Carbopol 1.5 gram**  
pengenceran 5x (2 ml ke LT 10)

Nilai abs gel 1,5 gram

Wavelength nm	RawData ...	RawData ...	RawData ...
290.00	0.3018	0.3010	0.3003
295.00	0.2838	0.2826	0.2823
300.00	0.2775	0.2766	0.2760
305.00	0.2735	0.2724	0.2720
310.00	0.2693	0.2679	0.2678
315.00	0.2619	0.2607	0.2605
320.00	0.2525	0.2514	0.2508

**Kontrol (-)**  
tanpa pengenceran

Nilai abs kontrol (-)

### Lampiran 31. Hasil pembuatan gel daun kemangi dan uji mutu fisik



Sediaan gel daun kemangi



Kontrol (-)



Uji daya sebar gel



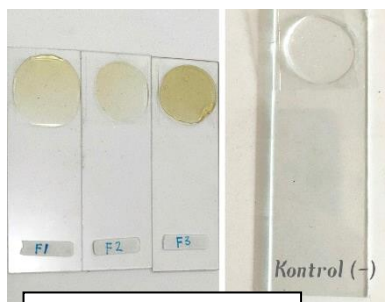
Uji daya lekat gel



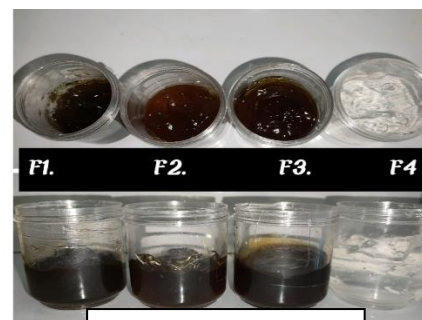
Uji viskositas gel



Uji pH gel



Uji homogenitas



Uji freezer Thaw

### Lampiran 32. Persiapan hewan uji dan uji eritema

