

## **BAB V**

### **KESIMPULAN DAN SARAN**

#### **A. Kesimpulan**

Kesimpulan yang didapat berdasarkan hasil penelitian dan data-data terhadap pengujian uji mutu krim adalah:

1. Ekstrak pegagan (*Centella asiatica* L. Urban) dapat dibuat menjadi sediaan krim.
2. Pengaruh variasi basis asam stearat dan triethanolamin dalam pembuatan krim ekstrak pegagan memberikan uji daya sebar yang paling besar dan uji daya lekat yang kecil pada formula 1 dibandingkan dengan formula 2 dan formula 3 terhadap uji mutu fisik dan organoleptisnya.

#### **B. Saran**

Saran yang didapat dari hasil penelitian krim ekstrak Ekstrak pegagan (*Centella asiatica* L. Urban) adalah:

1. Perlu dilakukan penelitian lebih lanjut tentang pembuatan krim ekstrak pegagan dengan variasi basis asam stearat dan trietanolamin yang berbeda.
2. Perlu dilakukan uji antioksidan terhadap sediaan krim ekstrak pegagan (*Centella asiatica* L. Urban).

## DAFTAR PUSTAKA

- Anggritasari A. 2013. *Uji Kualitatif Antioksidan Ekstrak Metanolik Daun Singkong (Manihot esculenta Crantz) dengan DPPH*. [KTI]. Surakarta: Fakultas Farmasi, Universitas Setia Budi.
- Ansel HC. 1989. *Pengantar Bentuk Sediaan Farmasi*. Edisi keempat. Jakarta: Universitas Indonesia. Hlm 502-503, 513-515, 605-608.
- Astuti S. 2008. Isoflavon Kedelai Dan Potensinya Sebagai Penangkap Radikal Bebas. *Jurnal Teknologi Industri Dan Hasil Pertanian*. Volume 13, No. 2. Hlm 129.
- [DEPKES RI]. 1977. *Materia Medika Indonesia Jilid I*. Jakarta: Departemen Kesehatan Republik Indonesia. Hlm. 34-39.
- [DEPKES RI]. 1979. *Farmakope Indonesia*. Edisi III. Jakarta: Departemen Kesehatan Republik Indonesia. Hlm 8, 65, 87-89, 140, 534, 613, 633.
- [DEPKES RI]. 1986. *Sediaan Galenik*. Jakarta: Departemen Kesehatan Republik Indonesia. Hlm 1-2, 6-7, 10-11.
- Hidayah YSN. 2013. *Formulasi Krim Ekstrak Kulit Buah Semangka (Citrullus vulgaris, Schrad) Sebagai Krim Tabir Surya Di Uji Secara In Vivo Pada Hewan Uji Kelinci Galur New Zealand*. [Skripsi]. Surakarta: Fakultas Farmasi, Universitas Setia Budi.
- Hamidi BL. 2009. *Efek Pemberian Ekstrak Ethanol Pegagan (Centella asiatica) terhadap Kinerja Tikus (Rattus novergicus) dalam Maze Radial Delapan Lengan Pasca Restraint Stres* [Skripsi]. Surakarta: Fakultas Kedokteran, Universitas Sebelas Maret.
- Harborne JB. 1987. *Metode Fitokimia : Penentuan Cara Modern Menganalisis Tumbuhan*. Cetakan ke-1. Diterjemahkan oleh Kosasih P, Iwang S. Bandung: ITB. Hlm 69-71.
- Hariana A. 2013. 262 Tumbuhan Obat dan Khasiatnya. Cetakan 1. Jakarta: Penebar Swadaya. Hlm. 273-276.
- Hernani M. Dan Rahardjo, M. 2005. *Tanaman Berkhasiat Antioksidan*. Jakarta: Penebar Swadaya. Hlm 9, 16-20.

- Idson B, Lazarus J. 1986. *Semi Padat*. Di dalam : Lachman L, Leberman HA, Kaning JL. *Teori dan Praktek Farmasi Industri*, Jilid II, Suyatmi S, Penerjemah; Jakarta: Universitas Indonesia Press. Hlm 87-88.
- Lau AN. 2013. *Uji Aktifitas antibakteri fraksi n-Heksan, Etil Asetat, Dan Air Dari Ekstrak Etanol Daun Kapuk Randu (Ceiba pentandra Gaertn) terhadap Bakteri Staphylococcus aureus ATCC 25923*. [Skripsi]. Surakarta: Fakultas Farmasi, Universitas Setia Budi.
- Marlina D. 2013. *Optimasi Proporsi Asam Stearat dan Trietanolamin Krim Tabir Surya Lapisan Putih Kulit Semangka Secara SLD dan Diuji Aktivitas Antioksidan terhadap Radikal Bebas*. [Skripsi]. Surakarta: Fakultas Farmasi, Universitas Setia Budi.
- Robinson T. 1995. *Kandungan Organik Tumbuhan Tingkat Tinggi*. Bandung: Institut Teknologi Bandung. Hlm 191-192.
- Salamah N, & Liani Farahana. 2014. Uji Aktivitas Antioksidan Ekstrak Etanol Herba Pegagan (*Centella Asiatica (L.) Urb*) Dengan Metode Fosfomolibdat. *Jurnal Pharmaçiana*, Vol. 4, No. 1: 23-30.
- Sulistiyowati A. 2013. *Formulasi dan Uji Sifat Fisik Krim Ekstrak Bawang Putih (Allium sativum L.)*. [KTI]. Surakarta: Fakultas Farmasi, Universitas Setia Budi.
- Swastika A, Mufrod, Purwanto. 2013. Aktivitas Antioksidan Krim Ekstrak Sari Tomat (*Solanum lycopersicum L.*). *Traditional Medicine Journal*. Vol. 18(3), p 132-140.
- Syamsuni H. A., 2005. *Ilmu Resep*. Jakarta: Buku Kedokteran EGC. Hlm 74.
- Voigt R. 1995. *Buku Pelajaran Teknologi Farmasi*. Edisi V. Cetakan Kedua. Diterjemahkan oleh Soendani Noerrono. Universitas Gajah Mada Press, Yogyakarta. Hlm 328, 366-367, 401-431.

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## Lampiran 1. Surat Keterangan Pembelian Bahan



**KEMENTERIAN KESEHATAN RI**  
**BADAN PENELITIAN DAN PENGEMBANGAN KESEHATAN**  
**BALAI BESAR PENELITIAN DAN PENGEMBANGAN**  
**TANAMAN OBAT DAN OBAT TRADISIONAL**

Jalan Raya Lawu No. 11 Tawangmangu, Karanganyar, Jawa Tengah  
 Telepon: (0271) 697010 Faksimile: (0271) 697451

E-mail: b2p2to2t@litbang.depkes.go.id Website: http://b2p2toot.litbang.depkes.go.id

Nomor : KM.03.02/VI.3/ ~~SK~~ /2014  
 Lampiran : -  
 Perihal : Keterangan Pembelian Bahan

18 Desember 2014

Yang terhormat,  
 Dekan Fakultas Farmasi  
 Universitas Setia Budi  
 Jalan Let. Jend. Sutoyo  
 Solo

Berdasarkan surat Ibu nomor 02/B/Lab.Bio.Far/X/2014 tanggal 31 Oktober 2014 perihal pembelian bahan dengan ini kami sampaikan bahwa mahasiswa Ibu a.n.:

No	Nama Mahasiswa	Nama Simplisia	Jumlah
1	Marfuah Wahyuningsih (NIM 15120910 B)	<i>Centella asiatica</i>	1 KG
2	Dominica Naiaki (NIM 15120911 B)	<i>Centella asiatica</i>	
3	Dini Ramadhani (NIM 15120919 B)	<i>Centella asiatica</i>	

telah melakukan pembelian simplisia serbuk *Centella asiatica* sebanyak 1 kg di Balai Besar Litbang Tanaman Obat dan Obat Tradisional (B2P2TOOT).

Sehubungan dengan itu, apabila telah selesai melakukan penelitian mahasiswa yang bersangkutan dimohon menyerahkan laporan hasil penelitian kepada Kepala B2P2TOOT.

Atas perhatian Ibu kami ucapkan terima kasih.

a.n. Kepala

Kabid Pelayanan Penelitian



Nita Supriyati, M.Biotech., Apt  
 NIP: 197811152002122001

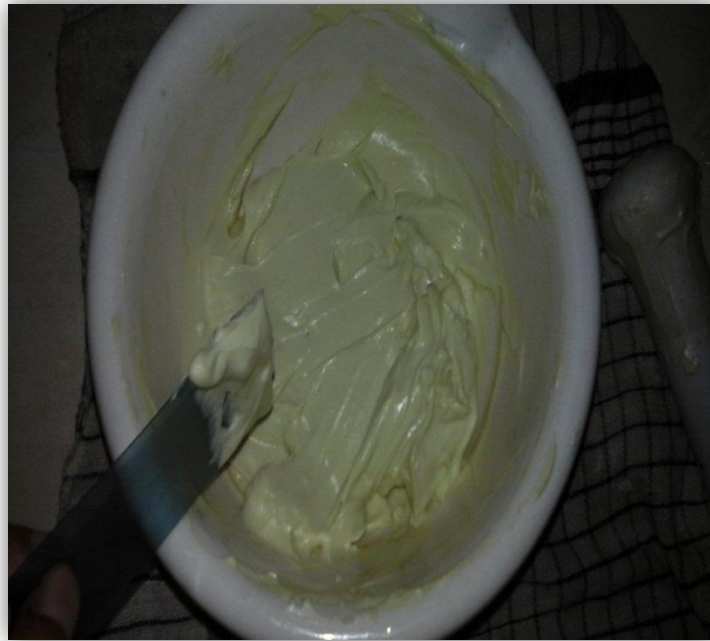
Tembusan :  
 Kepala B2P2TOOT

## Lampiran 2. Hasil Serbuk Pegagan



## Lampiran 3. Hasil Pembuatan Krim Ekstrak Pegagan





Lampiran 4. Hasil rendemen ekstrak etanolik pegagan

$$\begin{aligned}\text{Rendemen} &= \frac{\text{berat ekstrak}}{\text{berat serbuk}} \times 100\% \\ &= \frac{38,09 \text{ gram}}{200 \text{ gram}} \times 100\% \\ &= 19,045 \%\end{aligned}$$

Rendemen ekstrak pegagan adalah 19,045 %

Lampiran 5. Perhitungan bahan pembuatan basis *vanishing* krim dengan variasi basis asam stearat dan trietanolamin

1. Asam stearat

• Formula 1 :  $\frac{98,5}{25} \times 2 = 7,88 \text{ g}$

• Formula 2 :  $\frac{98,5}{25} \times 3 = 11,82 \text{ g}$

• Formula 3 :  $\frac{98,5}{25} \times 4 = 15,76 \text{ g}$

2. Vaselin album :  $\frac{98,5}{25} \times 2,3 = 9,062 \text{ g}$

3. Cera alba :  $\frac{98,5}{25} \times 0,5 = 1,97 \text{ g}$

4. Propilen glikol :  $\frac{98,5}{25} \times 1,8 = 7,092 \text{ g}$

5. TEA

• Formula 1 :  $\frac{98,5}{25} \times 0,2 = 0,788 \text{ g}$

• Formula 2 :  $\frac{98,5}{25} \times 0,4 = 1,576 \text{ g}$

• Formula 3 :  $\frac{98,5}{25} \times 0,6 = 2,364 \text{ g}$

6. Nipagin :  $\frac{0,01}{100} \times 100 = 0,01 \text{ g}$

7. Nipasol :  $\frac{0,05}{98,5} \times 100 = 0,05 \text{ g}$

8. Aquadest ad 100



## Lampiran 6. Penimbangan bahan krim ekstrak pegagan

Bahan	Formula I	Formula II	Formula III
Ekstrak herba pegagan	1,5	1,5	1,5
Asam stearat	7,88	11,82	15,76
Vaselin album	9,062	9,062	9,062
Cera alba	1,97	1,97	1,97
Propilen glikol	7,092	7,092	7,092
TEA	0,788	1,576	2,360
Aqua ad	100	100	100
Nipagin	0,01	0,01	0,01
Nipasol	0,05	0,05	0,05

Penimbangan bahan-bahan yang digunakan untuk pembuatan 100 gram krim ekstrak pegagan adalah:

$$\text{Ekstrak pegagan} = \frac{1,5}{100} \times 100 = 1,5 \text{ g}$$

$$\begin{aligned} \text{Basis vanishing krim} &= \text{Total krim} - \text{ekstrak pegagan} \\ &= 100 \text{ g} - 1,5 \text{ g} \\ &= 98,5 \text{ g} \end{aligned}$$

## Lampiran 7. Data Hasil Uji Daya Sebar Krim Ekstrak Pegagan

## a. Data pengujian minggu 1

Formula	Beban (Gram)	Replikasi		
		1	2	3
F1	50	7,3	7,1	6,5
	100	8,4	7,9	8,5
	150	8,5	8,5	9,1
	200	8,6	8,8	9,6
	250	9,1	9,2	9,7
F2	50	6,1	6,6	6,9
	100	6,9	7,3	7,5
	150	7,5	7,8	8,1
	200	7,8	8,2	8,3
	250	8	8,3	8,6
F3	50	4,8	5,4	4,8
	100	5,5	6	5,6
	150	6,9	6,3	5,7
	200	6,2	6,5	6,4
	250	6,2	6,8	6,6

## b. Data pengujian minggu 2

Formula	Beban (Gram)	Replikasi		
		1	2	3
F1	50	7,4	7,6	7,7
	100	8,1	8,3	8,5
	150	9,2	8,7	8,9
	200	9,6	8,9	9,5
	250	10	9,2	10,1
F2	50	6,1	6,6	6,8
	100	6,6	7,2	7,5
	150	6,9	7,6	8,1
	200	7,2	7,7	8,7
	250	7,6	8,1	8,8
F3	50	5,3	5,1	5,2
	100	6	5,7	6
	150	6,5	6,4	6,5
	200	6,9	6,7	6,9
	250	7,2	7	7,2

## c. Data pengujian minggu 3

Formula	Beban (Gram)	Replikasi		
		1	2	3
F1	50	7,4	7,2	7,4
	100	8,3	8,2	8,2
	150	8,7	8,7	8,8
	200	9,3	9,3	9,3
	250	9,7	9,7	9,9
F2	50	6,4	6,4	6,5
	100	7	7,2	7,1
	150	7,6	7,5	7,5
	200	7,9	7,8	7,9
	250	8,3	8,2	8,3
F3	50	5,4	5,2	5,1
	100	6	5,7	5,7
	150	6,5	6,2	6
	200	6,8	6,8	6,3
	250	6,9	6,9	6,6

## d. Data pengujian minggu 4

Formula	Beban (Gram)	Replikasi		
		1	2	3
F1	50	6,8	7,8	6,9
	100	7,3	8,2	7,4
	150	7,5	8,6	7,7
	200	7,8	9,1	8
	250	8,2	9,6	8,4
F2	50	5,9	5,9	6,1
	100	6,3	6,4	6,6
	150	6,7	6,7	6,7
	200	7	7,1	7,1
	250	7,3	7,6	7,5
F3	50	4,9	4,9	5,1
	100	5,3	4,3	5,2
	150	5,5	5,4	5,3
	200	5,6	5,6	5,5
	250	5,8	5,9	5,8

## Lampiran 8. Data Uji Daya Lekat Krim Ekstrak Pegagan

## a. Data pengujian minggu 1

Replikasi	Daya lekat (detik)		
	F1	F2	F3
1	1.61	2.44	6.53
2	1.56	2.47	6.50
3	1.47	3.23	9.53

## b. Data pengujian minggu 2

Replikasi	Daya lekat (detik)		
	F1	F2	F3
1	1.78	3.86	6,43
2	3.79	4.21	7,51
3	2.03	5.39	7,57

## c. Data pengujian minggu 3

Replikasi	Daya lekat (detik)		
	F1	F2	F3
1	1.31	3.53	8.52
2	1.38	3.49	7.57
3	1.41	3.41	8.15

## d. Data pengujian minggu 4

Replikasi	Daya lekat (detik)		
	F1	F2	F3
1	1.67	4.34	9.64
2	2.23	3.54	9.58
3	2.35	3.52	10.12

## Lampiran 9. Hasil Statistik Uji Viskositas

**NPar Tests****Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum
Ujiviskositas	12	146,67	37,979	100	200

**One-Sample Kolmogorov-Smirnov Test**

		Ujiviskositas
N		12
Normal Parameters <sup>a,b</sup>	Mean	146,67
	Std. Deviation	37,979
Most Extreme Differences	Absolute	,206
	Positive	,153
	Negative	-,206
Kolmogorov-Smirnov Z		,715
Asymp. Sig. (2-tailed)		,686

a. Test distribution is Normal.

b. Calculated from data.

**Oneway****Descriptives**

## Ujiviskositas

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	4	105,00	10,000	5,000	89,09	120,91	100	120
2	4	142,50	5,000	2,500	134,54	150,46	140	150
3	4	192,50	5,000	2,500	184,54	200,46	190	200
Total	12	146,67	37,979	10,964	122,54	170,80	100	200

### Test of Homogeneity of Variances

#### Ujiviskositas

Levene Statistic	df1	df2	Sig.
1,500	2	9	,274

### ANOVA

#### Ujiviskositas

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15416,667	2	7708,333	154,167	,000
Within Groups	450,000	9	50,000		
Total	15866,667	11			

### Post Hoc Tests

#### Multiple Comparisons

#### Uji Viskositas

#### LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-37.500*	5.000	.000	-48.81	-26.19
	3	-87.500*	5.000	.000	-98.81	-76.19
2	1	37.500*	5.000	.000	26.19	48.81
	3	-50.000*	5.000	.000	-61.31	-38.69
3	1	87.500*	5.000	.000	76.19	98.81
	2	50.000*	5.000	.000	38.69	61.31

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

## Lampiran 10. Hasil Statistik Uji Daya Sebar

**NPar Tests****Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum
Ujidayasebar	60	7.230	1.2764	4.9	9.8

**One-Sample Kolmogorov-Smirnov Test**

		Ujidayasebar
N		60
Normal Parameters <sup>a,b</sup>	Mean	7.230
	Std. Deviation	1.2764
Most Extreme Differences	Absolute	.066
	Positive	.066
	Negative	-.060
Kolmogorov-Smirnov Z		.514
Asymp. Sig. (2-tailed)		.955

a. Test distribution is Normal.

b. Calculated from data.

**Oneway****Descriptives**

## Ujidayasebar

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	20	8.460	.8388	.1876	8.067	8.853	7.0	9.8
2	20	7.300	.7130	.1594	6.966	7.634	6.0	8.3
3	20	5.930	.6860	.1534	5.609	6.251	4.9	7.1
Total	60	7.230	1.2764	.1648	6.900	7.560	4.9	9.8

**Test of Homogeneity of Variances**

Ujidayasebar

Levene Statistic	df1	df2	Sig.
.446	2	57	.642

**ANOVA**

Ujidayasebar

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	64.156	2	32.078	57.193	.000
Within Groups	31.970	57	.561		
Total	96.126	59			

**Post Hoc Tests**

Multiple Comparisons

Uji Daya Sebar

LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	dim 2	1,160*	,237	,000	,69	1,63
	ensi on3	2,530*	,237	,000	2,06	3,00
2	dim 1	-1,160*	,237	,000	-1,63	-,69
	ensi on3	1,370*	,237	,000	,90	1,84
2	dim 1	-2,530*	,237	,000	-3,00	-2,06
	ensi on3	-1,370*	,237	,000	-1,84	-,90

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



## Lampiran 11. Hasil Statistik Uji Daya Lekat

**NPar Tests****Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum
UjiDayaLekat	12	5.1075	3.76674	1.55	13.06

**One-Sample Kolmogorov-Smirnov Test**

		UjiDayaLekat
N		12
Normal Parameters <sup>a,b</sup>	Mean	5.1075
	Std. Deviation	3.76674
Most Extreme Differences	Absolute	.232
	Positive	.232
	Negative	-.172
Kolmogorov-Smirnov Z		.803
Asymp. Sig. (2-tailed)		.539

a. Test distribution is Normal.

b. Calculated from data.

**Oneway****Descriptives**

UjiDayaLekat

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	4	1.9350	.46886	.23443	1.1889	2.6811	1.55	2.53
2	4	3.6025	.74393	.37196	2.4187	4.7863	2.71	4.49
3	4	9.7850	2.37466	1.18733	6.0064	13.5636	7.50	13.06
Total	12	5.1075	3.76674	1.08737	2.7142	7.5008	1.55	13.06

### Test of Homogeneity of Variances

UjiDayaLekat

Levene Statistic	df1	df2	Sig.
2.500	2	9	.137

### ANOVA

Uji Daya Lekat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	136,835	2	68,418	32,009	,000
Within Groups	19,237	9	2,137		
Total	156,072	11			

### Post Hoc Tests

#### Multiple Comparisons

Uji Daya Lekat

LSD

(I) Formu la	(J) Formu la	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-1.67250*	.59414	.020	-3.0165	-.3285
	3	-6.20750*	.59414	.000	-7.5515	-4.8635
2	1	1.67250*	.59414	.020	.3285	3.0165
	3	-4.53500*	.59414	.000	-5.8790	-3.1910
3	1	6.20750*	.59414	.000	4.8635	7.5515
	2	4.53500*	.59414	.000	3.1910	5.8790

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

## Lampiran 12. Uji T Test Viskositas Formula 1

**NPar Tests****Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Viskositas F1	6	118.33	11.690	100	130

**One-Sample Kolmogorov-Smirnov Test**

		Uji Viskositas F1
N		6
Normal Parameters <sup>a,b</sup>	Mean	118.33
	Std. Deviation	11.690
Most Extreme Differences	Absolute	.223
	Positive	.159
	Negative	-.223
Kolmogorov-Smirnov Z		.547
Asymp. Sig. (2-tailed)		.926

a. Test distribution is Normal.

b. Calculated from data.

**T-Test****Group Statistics**

	Minggu	N	Mean	Std. Deviation	Std. Error Mean
Uji Viskositas	1	3	110.00	10.000	5.774
F1	4	3	126.67	5.774	3.333



## Lampiran 13. Uji T Test Viskositas Formula 2

**NPar Tests****Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Viskositas F2	6	155.00	10.488	140	170

**One-Sample Kolmogorov-Smirnov Test**

		Uji Viskositas F2
N		6
Normal Parameters <sup>a,b</sup>	Mean	155.00
	Std. Deviation	10.488
Most Extreme Differences	Absolute	.183
	Positive	.183
	Negative	-.183
Kolmogorov-Smirnov Z		.449
Asymp. Sig. (2-tailed)		.988

a. Test distribution is Normal.

b. Calculated from data.

**T-Test****Group Statistics**

	Mingg u	N	Mean	Std. Deviation	Std. Error Mean
Uji Viskositas F2	1	3	150.00	10.000	5.774
	4	3	160.00	10.000	5.774

### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Uji Viskositas	Equal variances assumed	.000	1.000	-1.225	4	.288	-10.000	8.165	-32.670	12.670
	Equal variances not assumed			-1.225	4.000	.288	-10.000	8.165	-32.670	12.670

## Lampiran 14. Uji T Test Viskositas Formula 3

**NPar Tests****Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Viskositas F3	6	201.67	11.690	190	220

**One-Sample Kolmogorov-Smirnov Test**

		Uji Viskositas F3
N		6
Normal Parameters <sup>a, b</sup>	Mean	201.67
	Std. Deviation	11.690
Most Extreme Differences	Absolute	.223
	Positive	.223
	Negative	-.159
Kolmogorov-Smirnov Z		.547
Asymp. Sig. (2-tailed)		.926

a. Test distribution is Normal.

b. Calculated from data.

**T-Test****Group Statistics**

	Minggu	N	Mean	Std. Deviation	Std. Error Mean
Uji Viskositas F3	1	3	193.33	5.774	3.333
	4	3	210.00	10.000	5.774

### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Uji Viskositas F3	Equal variances assumed	.400	.561	-2.500	4	.067	-16.667	6.667	-35.176	1.843
	Equal variances not assumed			-2.500	3.200	.082	-16.667	6.667	-37.152	3.819



## Lampiran 15. Uji T Test Daya Sebar Formula 1

**NPar Tests****Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Daya Sebar F1	10	8.200	.7645	7.0	9.3

**One-Sample Kolmogorov-Smirnov Test**

		Uji Daya Sebar F1
N		10
Normal Parameters <sup>a,b</sup>	Mean	8.200
	Std. Deviation	.7645
Most Extreme Differences	Absolute	.152
	Positive	.105
	Negative	-.152
Kolmogorov-Smirnov Z		.481
Asymp. Sig. (2-tailed)		.975

a. Test distribution is Normal.

b. Calculated from data.

**T-Test****Group Statistics**

	Minggu	N	Mean	Std. Deviation	Std. Error Mean
Uji Daya Sebar F1	1	5	8.460	.8961	.4007
	4	5	7.940	.5857	.2619

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Uji Daya Sebar F1	Equal variances assumed	.540	.483	1.086	8	.309	.5200	.4787	-.5840	1.6240
	Equal variances not assumed			1.086	6.890	.314	.5200	.4787	-.6157	1.6557

## Lampiran 16. Uji T Test Daya Sebar Formula 2

**NPar Tests****Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Daya Sebar F2	10	7.140	.7677	6.0	8.3

**One-Sample Kolmogorov-Smirnov Test**

		Uji Daya Sebar F2
N		10
Normal Parameters <sup>a,b</sup>	Mean	7.140
	Std. Deviation	.7677
Most Extreme Differences	Absolute	.121
	Positive	.121
	Negative	-.105
Kolmogorov-Smirnov Z		.382
Asymp. Sig. (2-tailed)		.999

a. Test distribution is Normal.

b. Calculated from data.

**T-Test****Group Statistics**

	Mingg u	N	Mean	Std. Deviation	Std. Error Mean
Uji Daya Sebar F2	1	5	7.540	.7635	.3415
	4	5	6.740	.5857	.2619

### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Uji Daya Sebar F2	Equal variances assumed	.963	.355	1.859	8	.100	.8000	.4303	-.1924	1.7924
	Equal variances not assumed			1.859	7.496	.103	.8000	.4303	-.2041	1.8041

## Lampiran 17. Uji T Test Daya Sebar Formula 3

**NPar Tests****Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Daya Sebar F3	10	5.650	.6096	4.9	6.5

**One-Sample Kolmogorov-Smirnov Test**

		Uji Daya Sebar F3
N		10
Normal Parameters <sup>a,b</sup>	Mean	5.650
	Std. Deviation	.6096
Most Extreme Differences	Absolute	.157
	Positive	.157
	Negative	-.157
Kolmogorov-Smirnov Z		.496
Asymp. Sig. (2-tailed)		.966

a. Test distribution is Normal.

b. Calculated from data.

**T-Test****Group Statistics**

	Minggu	N	Mean	Std. Deviation	Std. Error Mean
Uji Daya Sebar F3	1	5	5.980	.6301	.2818
	4	5	5.320	.4087	.1828

### Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
								95% Confidence Interval of the Difference		
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
Uji Daya Sebar F3	Equal variances assumed	1.339	.281	1.965	8	.085	.6600	.3359	-.1145	1.4345
	Equal variances not assumed			1.965	6.859	.091	.6600	.3359	-.1375	1.4575

## Lampiran 18. Uji T Test Daya lekat Formula 1

**NPar Tests****Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Daya Lekat	6	1.8200	.37175	1.47	2.35

**One-Sample Kolmogorov-Smirnov Test**

	Uji Daya Lekat
N	6
Normal Parameters <sup>a,b</sup>	
Mean	1.8200
Std. Deviation	.37175
Most Extreme Differences	
Absolute	.323
Positive	.323
Negative	-.198
Kolmogorov-Smirnov Z	.792
Asymp. Sig. (2-tailed)	.557

a. Test distribution is Normal.

b. Calculated from data.

**T-Test****Group Statistics**

	Minggu	N	Mean	Std. Deviation	Std. Error Mean
Uji Daya Lekat	1	3	1.5567	.07572	.04372
	4	3	2.0833	.36295	.20955

### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Uji Daya Lekat	Equal variances assumed	7.665	.050	-2.460	4	.070	-.52667	.21406	-1.12100	.06766
	Equal variances not assumed			-2.460	2.174	.123	-.52667	.21406	-1.38062	.32729



## Lampiran 19. Uji T Test Daya lekat Formula 1

**NPar Tests****Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Daya Lekat	6	3.5900	.38377	3.23	4.34

**One-Sample Kolmogorov-Smirnov Test**

		Uji Daya Lekat
N		6
Normal Parameters <sup>a, b</sup>	Mean	3.5900
	Std. Deviation	.38377
Most Extreme Differences	Absolute	.385
	Positive	.385
	Negative	-.181
Kolmogorov-Smirnov Z		.943
Asymp. Sig. (2-tailed)		.336

a. Test distribution is Normal.

b. Calculated from data.

**T-Test****Group Statistics**

	Mingg u	N	Mean	Std. Deviation	Std. Error Mean
Uji Daya	1	3	3.3800	.13077	.07550
Lekat	4	3	3.8000	.46776	.27006

### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Uji Daya Lekat	Equal variances assumed	7.653	.051	-1.498	4	.209	-.42000	.28042	-1.19856	.35856
	Equal variances not assumed			-1.498	2.311	.257	-.42000	.28042	-1.48365	.64365

## Lampiran 20. Uji T Test Daya lekat Formula 3

**NPar Tests****Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Daya Lekat	6	8.6500	1.66717	6.50	10.12

**One-Sample Kolmogorov-Smirnov Test**

		Uji Daya Lekat
N		6
Normal Parameters <sup>a,b</sup>	Mean	8.6500
	Std. Deviation	1.66717
Most Extreme Differences	Absolute	.368
	Positive	.232
	Negative	-.368
Kolmogorov-Smirnov Z		.901
Asymp. Sig. (2-tailed)		.391

a. Test distribution is Normal.

b. Calculated from data.

**T-Test****Group Statistics**

	Minggu	N	Mean	Std. Deviation	Std. Error Mean
Uji Daya Lekat	1	3	7.5200	1.74078	1.00504
	4	3	9.7800	.29597	.17088

### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Uji Daya Lekat	Equal variances assumed	10.703	.061	-2.217	4	.091	-2.26000	1.01946	-5.09048	.57048
	Equal variances not assumed			-2.217	2.116	.150	-2.26000	1.01946	-6.42463	1.90463

