LAMPIRAN

Lampiran 1. Hasil determinasi tanaman Daun Sirih Hijau (*Piper Betle L.*)

PEMERINTAH PROVINSI JAWA TIMUR
DINAS KESEHATAN
UPT LABORATORIUM HERBAL
MATERIA MEDICA BATU
Jl. Lahor 87 Kota Batu
Jl. Raya 228 Kejayan Kabupaten Pasuruan
Jl. Kolonel Sugiono 457 – 459 Kota Malang
Email : materiamedicabatu@jatimprov.go.id

Nomor : 074/ 630/ 102.20-A/ 2022
Sifat : Biasa
Perihal : **Determinasi Tanaman Sirih Hijau**

Memenuhi permohonan saudara :

Nama : IFAN ARIANTO
NIM : 25195889A
Fakultas : FARMASI, UNIVERSITAS SETIA BUDI

1. Perihal determinasi tanaman sirih hijau
   - Kingdom : Plantae
   - Divisi : Magnoliophyta (Tumbuhan berbunga)
   - Kelas : Dicotyledonae
   - Bangsa : Piperales
   - Suku : Piperaceae
   - Marga : Piper
   - Jenis : *Piper betle* L.
   - Nama Umum : Sirih hijau.
   - Kunci Determinasi : 1b-2b-3b-4b-6b-7b-9a-41b-42b-43b-54b-59b-61b-62b-63a-64a:Piperaceae-1a:*P.betle*.
2. Morfologi : Habitus: Perdu, merambat. Batang: Berkayu, bulat, berbuku-buku, beralur, hijau. Daun: Tunggal, bulat panjang, pangkal bentuk jantung, ujung meruncing, tepi rata, panjang 5-8 cm, lebar 2-5 cm, bertangkai, permukaan halus, pertulangan menyirip, hijau, hijau tua. Bunga: Majemuk, bentuk bulir, daun pelindung ±1 mm, bentuk bulat panjang, bulir jantan panjang 1,5-3 cm, benang sari dua, pendek, bulir betina panjang 1,5-6 cm, kelapa putik tiga sampai lima, putih, hijau kekuningan. Buah: Buni, bulat, hijau keabu-abuan. Akar: Tunggang, bulat, coklat kekuningan.
3. Bagian yang digunakan : Daun.
4. Penggunaan : Penelitian (Skripsi).
5. Daftar Pustaka
   - Anonim. 1980. *Materia Medica Indonesia "Jilid IV"*. Departemen Kesehatan Republik Indonesia.
   - Van Steenis, CGGJ. 2008. *FLORA, untuk Sekolah di Indonesia*. Pradnya Paramita, Jakarta.

Demikian surat keterangan determinasi ini kami buat untuk dipergunakan sebagaimana mestinya.

Batu, 14 September 2022
KEPALA UPT LABORATORIUM HERBAL
MATERIA MEDICA BATU

MUHAMMAD ZAHRUR, SKM, M.Kes.
PEMBINA
NIP. 19680203 199203 1 004

Lampiran 2. Sertifikat hasil uji bakteri *Propionibacterium acne*

PRO – Technology

Laboratorium Uji Mikrobiologi

Jalan Cempaka Putih No.69 - Jakarta Pusat

Indonesia

SERTIFIKAT HASIL UJI

1. Bakteri : Stock Strain *Propionibacterium acne* ATCC 11827
2. Nomor Uji Bakteri : V. 1. 7
3. Tanggal Uji bakteri : 9 – 14 November 2020

Uraian Hasil Uji

Strain V. 1. 7. Biakan Murni dari *Propionibacterium acne* ATCC 11827

I. Ciri-ciri koloni :

1. Pewarnaan Gram : Bentuk sel batang anaerobik, kecil-kecil, menyebar, berwarna merah violet, Gram positip.

2. Di tanam pada media Blood Agar Plate (BAP) : koloni berwarna putih, permukaan koloni cembung

II. Uji Fermentasi Karbohidrat dan Biokimia Penegasan

Uji Fisiologi bakteri	Hasil Uji
1. MOTILITAS	+
2. KATALASE	+
3. KOAGULASE	+
4. GLUKOSA	ASAM : + GAS : 0
5. LAKTOSA	ASAM : + GAS : 0
6. MALTOSA	ASAM : + GAS : 0
7. SUKROSA	ASAM : + GAS : 0
8. DEKTROSA	ASAM : + GAS : +

Catatan:

1. Hasil Uji ini hanya berlaku untuk contoh yang diuji.

PRO - Technology
Laboratorium Uji Mikrobiologi
Jakarta - Indonesia

Lampiran 3. Gambar bahan penelitian

Gambar daun sirih hujau 	Gambar pengeringan 
Gambar serbuk daun sirih hijau 	Gambar ekstrak daun sirih hijau 

Lampiran 4. Gambar alat penelitian

<table>
<tr>
<td>Gambar moisture balance
  </td>
<td>Gambar rotary vacuum evaporator
  </td>
</tr>
<tr>
<td>Gambar inkubator
 
</td>
<td>Gambar Laminar air flow
  </td>
</tr>
</table>

Lampiran 5. Perhitungan rendemen dan susut pengeringan serbuk daun sirih hijau

Perhitungan rendemen simplisia kering daun sirih hijau

Sampel	Bobot basah (g)	Bobot kering (g)	Rendemen (%)
Daun sirih hijau	13000	1600	12,30

Rendemen simplisia kering daun sirih hijau $= \frac{Bobot\ kering}{Bobot\ basah} \times 100\%$

$= \frac{1600}{13000} \times 100\%$

$= 12{,}30\ \%$

Perhitungan rendemen serbuk terhadap berat kering daun sirih hijau

Sampel	Bobot kering (g)	Bobot serbuk (g)	Rendemen (%)
Daun sirih hijau	1600	1000	68,57

Rendemen serbuk daun sirih hijau$= \frac{Bobot\ serbuk}{Bobot\ kering} \times 100\%$

$= \frac{1000}{1600} \times 100\%$

$= 65{,}5\%$

Perhitungan susut pengeringan serbuk daun sirih hijau

Replikasi	Bobot serbuk (g)	Susut pengeringan (%)
1	2.0	6,30
2	2.0	7,30
3	2.0	7,10
Rata-rata		6,9
SD		0,52

Presentase rata-rata susut pengeringan $= \frac{6{,}30+7{,}30+7{,}10}{3} = 6{,}9$

Lampiran 6. Perhitungan rendemen dan kadar air ekstrak daun sirih hijau

Perhitungan rendemen ekstrak daun sirih hijau

Sampel	Bobot serbuk (g)	Bobot ekstrak (g)	Rendemen (%)
Daun sirih hijau	800	109	13,625

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

$= \frac{109}{800} \times 100\%$

$= 13{,}625\%$

Perhitungan kadar air ekstrak daun sirih hijau

Replikasi	Bobot ekstrak (g)	Volume air (mL)	Kadar air (%)
1	20	0,9	4,5
2	20	1	5
3	20	1,2	6
Rata-rata ± SD	5,16 ±0,76		

Kadar air $= \frac{volume\ air}{bobot\ ekstrak} \times 100\%$

Replikasi 1 $= \frac{0{,}9}{20} \times 100\% = 4{,}5\%$

Replikasi 2 $= \frac{1}{20} \times 100\% = 5\%$

Replikasi 3 $= \frac{1{,}2}{20} \times 100\% = 6\%$

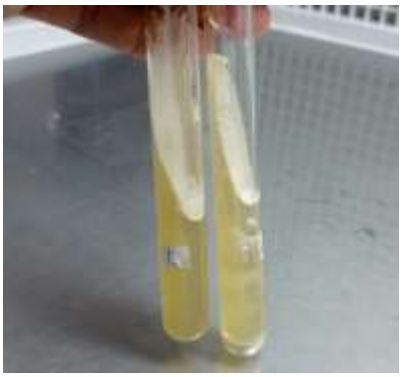
Lampiran 7. Hasil identifikasi kandungan kimia ekstrak daun sirih hijau

Senyawa kimia	Hasil	Interpretasi data
Alkaloid	Terbentuk endapan warna kuning jingga	
Flavonoid	Terbentuk warna jingga pada lapisan amil alkohol	
Tannin	Larutan menjadi warna hijau kehitaman	

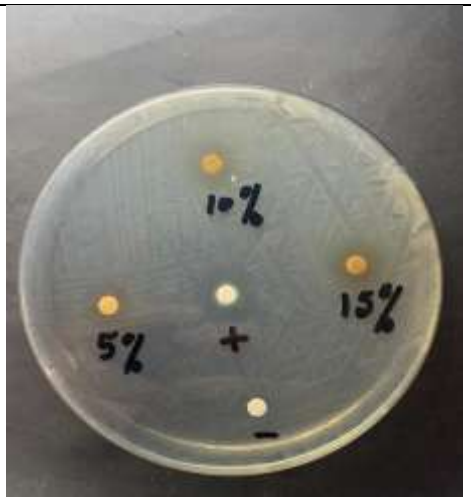
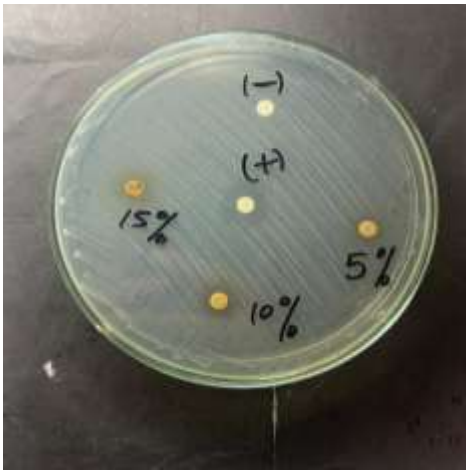
Lampiran 8. Hasil pengujian bebas etanol ekstrak daun sirih hijau

Perlakuan	Hasil	Pustaka	Interpretasi data
Ekstrak + H_2SO_4 + $CH_3COOH \rightarrow$ Dipanaskan	+	Dikatakan bebas etanol apabila tidak tercium bau khas eter (Kurniawati, 2015)	

Lampiran 9. Stok (media miring) bakteri *Propionibacterium acne*



Lampiran 10. Hasil pengujian aktivitas antibakteri ekstrak daun sirih hijau

Gambar hasil diameter zona hambat ekstrak
   

Lampiran 11. Data hasil diameter zona hambat ekstrak daun sirih hijau

Replikasi	Diameter zona hambat (mm)				
	Konsentrasi 5%	Konsentrasi 10%	Konsentrasi 15%	Kontrol +	Kontrol -
1	14,92	16,34	18,13	20,67	0,00
2	14,92	15,88	17,71	25	0,00
3	15,28	15,92	17,97	22,67	0,00
Rata-rata ± SD	15,01 ± 0,23	16,04 ± 0,25	17,93 ± 0,21	20,30 ± 0,17	0,00 ± 0,00

Lampiran 12. Hasil analisis SPSS aktivitas antibakteri ekstrak daun sirih hijau

Uji *One Way ANOVA*

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	konsentrasi	Statistic	df	Sig.	Statistic	df	Sig.
diameter_zona_hambat	5%	.321	3	.	.881	3	.328
	10%	.357	3	.	.815	3	.150
	15%	.229	3	.	.981	3	.739
	kontrol +	.243	3	.	.972	3	.679

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
diameter_zona_hambat	Based on Mean	.360	3	8	.784
	Based on Median	.031	3	8	.992
	Based on Median and with adjusted df	.031	3	6.127	.992
	Based on trimmed mean	.313	3	8	.816

ANOVA

diameter_zona_hambat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	48.668	3	16.223	333.568	.000
Within Groups	.389	8	.049		
Total	49.057	11			

Post Hoc Test

Multiple Comparisons

Dependent Variable: diameter_zona_hambat
Tukey HSD

(I) konsentrasi	(J) konsentrasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
5%	10%	-1.03333*	.18006	.002	-1.6100	-.4567
	15%	-2.92333*	.18006	.000	-3.5000	-2.3467
	kontrol +	-5.29000*	.18006	.000	-5.8666	-4.7134
10%	5%	1.03333*	.18006	.002	.4567	1.6100
	15%	-1.89000*	.18006	.000	-2.4666	-1.3134
	kontrol +	-4.25667*	.18006	.000	-4.8333	-3.6800
15%	5%	2.92333*	.18006	.000	2.3467	3.5000
	10%	1.89000*	.18006	.000	1.3134	2.4666
	kontrol +	-2.36667*	.18006	.000	-2.9433	-1.7900
kontrol +	5%	5.29000*	.18006	.000	4.7134	5.8666
	10%	4.25667*	.18006	.000	3.6800	4.8333
	15%	2.36667*	.18006	.000	1.7900	2.9433

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

diameter_zona_hambat

Tukey HSD[a]

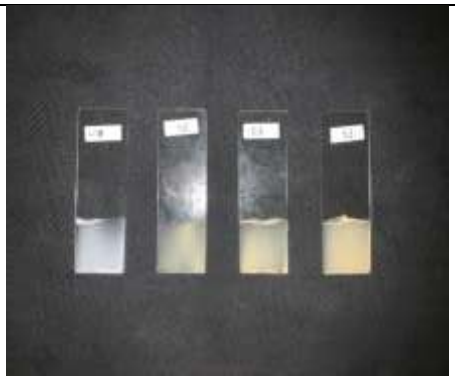
konsentrasi	N	Subset for alpha = 0.05 1	2	3	4
5%	3	15.0133			
10%	3		16.0467		
15%	3			17.9367	
kontrol +	3				20.3033
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 13. Sediaan emulgel ekstrak daun sirih hijau

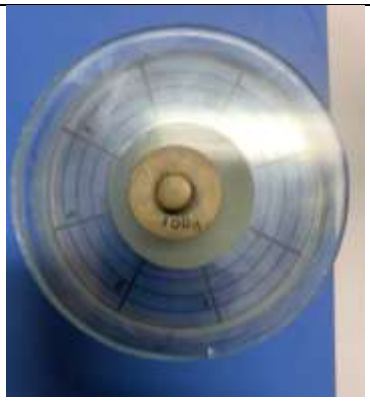
Gambar sediaan emulgel


Lampiran 14. Hasil uji mutu fisik sediaan krim ekstrak daun sirih hijau

Gambar uji homogenitas


Gambar uji *p*H


Gambar uji viskositas


Gambar uji daya sebar	
	
	

Gambar uji daya lekat

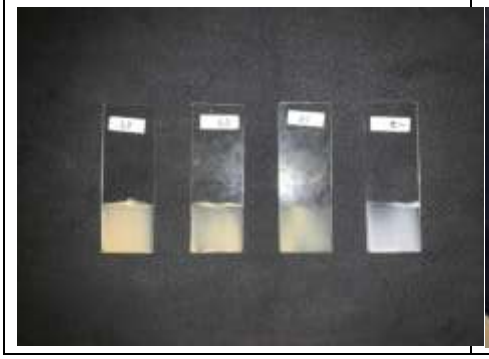
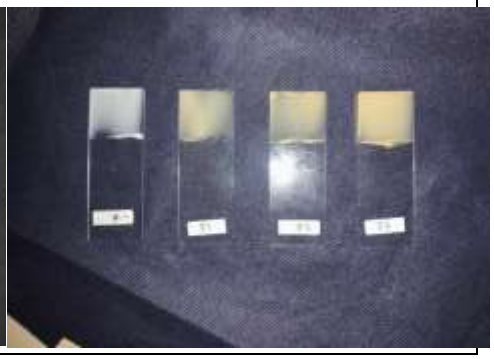

Gambar uji tipe krim		
Pewarnaan	**Konduktivitas**	**Pengenceran**
		

Lampiran 15. Dokumentasi hasil uji stabilitas sediaan emulgel

Dokumentasi uji stabilitas sebelum dan sesudah *Cycling test*

Gambar sediaan krim	
Sebelum *Cycling test*	Sesudah *Cycling test*
	

Dokumentasi uji homogenitas sediaan emulgel sebelum dan sesudah *Cycling test*

Sebelum *Cycling test*	Sesudah *Cycling test*
	

Lampiran 16. Data hasil uji mutu fisik *p*H

Formula	repikkasi 1	replikasi 2	replikasi 3	Rata - rata	Sd
Formula 1	5,71	5,98	5,66	5,78	0,17
Formula 2	5,43	5,45	5,47	5,45	0,02
Formula 3	5,28	5,24	5,3	5,27	0,03
Kontrol negatif	5,57	5,66	5,55	5,59	0,06

Kontrol Negatif **:** sediaan emulgel dengan carbopol 1,5% (tanpa penambahan ekstrak)
Formula 1 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1%
Formula 2 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1,5%
Formula 3 : sediaan emulgel ekstrak sirih hijau (*Piper Betle L.*) dengan carbopol 2%

Lampiran 17. Hasil analisis SPSS uji mutu fisik *p*H

Uji *One Way* ANOVA

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
pH	Formula I	.332	3	.	.864	3	.278
	Formula II	.175	3	.	1.000	3	1.000
	Formula III	.253	3	.	.964	3	.637
	Formula K-	.321	3	.	.881	3	.328

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

pH

Levene Statistic	df1	df2	Sig.
7.489	3	8	.010

ANOVA

pH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.421	3	.140	16.322	.001
Within Groups	.069	8	.009		
Total	.490	11			

Post Hoc Tests

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
Formula I	Formula II	.33333*	.07572	.010	.0909	.5758
	Formula III	.51000*	.07572	.001	.2675	.7525
	Formula K-	.19000	.07572	.133	-.0525	.4325
Formula II	Formula I	-.33333*	.07572	.010	-.5758	-.0909
	Formula III	.17667	.07572	.169	-.0658	.4191
	Formula K-	-.14333	.07572	.303	-.3858	.0991
Formula III	Formula I	-.51000*	.07572	.001	-.7525	-.2675
	Formula II	-.17667	.07572	.169	-.4191	.0658
	Formula K-	-.32000*	.07572	.012	-.5625	-.0775
Formula K-	Formula I	-.19000	.07572	.133	-.4325	.0525
	Formula II	.14333	.07572	.303	-.0991	.3858
	Formula III	.32000*	.07572	.012	.0775	.5625

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

Homogeneous Subsets

pH

Tukey HSD[a]

Formula	N	Subset for alpha = 0.05		
		1	2	3
Formula III	3	5.2733		
Formula II	3	5.4500	5.4500	
Formula K-	3		5.5933	5.5933
Formula I	3			5.7833
Sig.		.169	.303	.133

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 18. Data hasil uji mutu fisik daya lekat

Formula	repikkasi 1	replikasi 2	replikasi 3	Rata - rata	Sd
Formula 1	1,57	1,61	1,54	1,57	0,035
Formula 2	2,43	2,29	2,14	2,29	0,145
Formula 3	3,11	3,25	3,41	3,26	0,150
Kontrol negatif	2,56	2,58	2,64	2,59	0,042

Kontrol Negatif **:** sediaan emulgel dengan carbopol 1,5% (tanpa penambahan ekstrak)
Formula 1 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1%
Formula 2 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1,5%
Formula 3 : sediaan emulgel ekstrak sirih hijau (*Piper Betle L.*) dengan carbopol 2%

Lampiran 19. Hasil analisis SPSS uji mutu fisik daya lekat

Uji *One Way* ANOVA

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Daya_lekat	Formula I	.204	3	.	.993	3	.843
	Formula II	.177	3	.	1.000	3	.962
	Formula III	.184	3	.	.999	3	.927
	Formula K-	.292	3	.	.923	3	.463

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Daya_lekat

Levene Statistic	df1	df2	Sig.
1.481	3	8	.291

ANOVA

Daya_lekat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.393	3	1.464	125.884	.000
Within Groups	.093	8	.012		
Total	4.486	11			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Daya_lekat

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula I	Formula II	-.71333*	.08807	.000	-.9954	-.4313
	Formula III	-1.68333*	.08807	.000	-1.9654	-1.4013
	Formula K-	-1.02000*	.08807	.000	-1.3020	-.7380
Formula II	Formula I	.71333*	.08807	.000	.4313	.9954
	Formula III	-.97000*	.08807	.000	-1.2520	-.6880
	Formula K-	-.30667*	.08807	.034	-.5887	-.0246
Formula III	Formula I	1.68333*	.08807	.000	1.4013	1.9654
	Formula II	.97000*	.08807	.000	.6880	1.2520
	Formula K-	.66333*	.08807	.000	.3813	.9454
Formula K-	Formula I	1.02000*	.08807	.000	.7380	1.3020
	Formula II	.30667*	.08807	.034	.0246	.5887
	Formula III	-.66333*	.08807	.000	-.9454	-.3813

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

Homogeneous Subsets

Daya_lekat

Tukey HSD[a]

Formula	N	Subset for alpha = 0.05			
		1	2	3	4
Formula I	3	1.5733			
Formula II	3		2.2867		
Formula K-	3			2.5933	
Formula III	3				3.2567
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 20. Data hasil uji mutu fisik viskositas

Formula	repikkasi 1	replikasi 2	replikasi 3	Rata - rata	Sd
Formula 1	9,4	9,775	9,5	9,56	0,19
Formula 2	13,425	13,3	13,25	13,33	0,09
Formula 3	18,775	18,7	18,625	18,70	0,07
Kontrol negatif	15,1	14,9	15,375	15,13	0,24

Kontrol Negatif **:** sediaan emulgel dengan carbopol 1,5% (tanpa penambahan ekstrak)
Formula 1 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1%
Formula 2 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1,5%
Formula 3 : sediaan emulgel ekstrak sirih hijau (*Piper Betle L.*) dengan carbopol 2%

Lampiran 21. Hasil analisis SPSS uji mutu fisik viskositas

Uji *One Way* ANOVA

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Viskositas	Formula I	.285	3	.	.932	3	.497
	Formula II	.276	3	.	.942	3	.537
	Formula III	.175	3	.	1.000	3	1.000
	Formula K-	.208	3	.	.992	3	.826

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Viskositas

Levene Statistic	df1	df2	Sig.
1.577	3	8	.269

ANOVA

Viskositas

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	130242656.2	3	43414218.75	1602.987	.000
Within Groups	216666.667	8	27083.333		
Total	130459322.9	11			

Post Hoc Tests

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
Formula I	Formula II	-3766.66667*	134.37096	.000	-4196.9698	-3336.3635
	Formula III	-9141.66667*	134.37096	.000	-9571.9698	-8711.3635
	Formula K-	-5566.66667*	134.37096	.000	-5996.9698	-5136.3635
Formula II	Formula I	3766.66667*	134.37096	.000	3336.3635	4196.9698
	Formula III	-5375.00000*	134.37096	.000	-5805.3031	-4944.6969
	Formula K-	-1800.00000*	134.37096	.000	-2230.3031	-1369.6969
Formula III	Formula I	9141.66667*	134.37096	.000	8711.3635	9571.9698
	Formula II	5375.00000*	134.37096	.000	4944.6969	5805.3031
	Formula K-	3575.00000*	134.37096	.000	3144.6969	4005.3031
Formula K-	Formula I	5566.66667*	134.37096	.000	5136.3635	5996.9698
	Formula II	1800.00000*	134.37096	.000	1369.6969	2230.3031
	Formula III	-3575.00000*	134.37096	.000	-4005.3031	-3144.6969

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

Homogeneous Subsets

Viskositas

Tukey HSD[a]

Formula	N	Subset for alpha = 0.05			
		1	2	3	4
Formula I	3	9558.3333			
Formula II	3		13325.0000		
Formula K-	3			15125.0000	
Formula III	3				18700.0000
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 22. Data hasil uji mutu fisik daya sebar

Formula	Beban	Replikasi 1	Replikasi 2	Replikasi 3	Rata - rata	Sd
1	0	5,3	5,3	5,5	5,37	0,12
	50	5,8	6,1	5,9	5,93	0,15
	100	6,4	6,6	6,9	6,63	0,25
	200	6,9	7	7,2	7,03	0,15
2	0	5	5	5,3	5,10	0,17
	50	5,5	5,5	5,4	5,47	0,06
	100	5,8	5,9	6	5,90	0,10
	200	6	6,4	6,2	6,20	0,20
3	0	3,8	3,9	3,9	3,87	0,06
	50	4,1	4,3	4,7	4,37	0,31
	100	4,8	4,6	5,3	4,90	0,36
	200	5,3	5,5	5,5	5,43	0,12
4	0	4,7	4,9	4,9	4,83	0,12
	50	4,9	5,2	5,2	5,10	0,17
	100	5,1	5,3	5,5	5,30	0,20
	200	5,3	5,6	6	5,63	0,35

Kontrol Negatif **:** sediaan emulgel dengan carbopol 1,5% (tanpa penambahan ekstrak)
Formula 1 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1%
Formula 2 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1,5%
Formula 3 : sediaan emulgel ekstrak sirih hijau (*Piper Betle L.*) dengan carbopol 2%

Lampiran 23. Hasil analisis SPSS uji mutu fisik daya sebar

Uji *One Way* ANOVA

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Daya_sebar	Formula I	.175	3	.	1.000	3	1.000
	Formula II	.175	3	.	1.000	3	1.000
	Formula III	.292	3	.	.923	3	.463
	Formula K-	.268	3	.	.951	3	.573

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Daya_sebar

Levene Statistic	df1	df2	Sig.
.304	3	8	.822

ANOVA

Daya_sebar

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.434	3	1.811	61.949	.000
Within Groups	.234	8	.029		
Total	5.668	11			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Daya_sebar

Tukey HSD

		Mean Difference (I-J)			95% Confidence Interval	
(I) Formula	(J) Formula		Std. Error	Sig.	Lower Bound	Upper Bound
Formula I	Formula II	.55000*	.13962	.018	.1029	.9971
	Formula III	1.81667*	.13962	.000	1.3695	2.2638
	Formula K-	1.10667*	.13962	.000	.6595	1.5538
Formula II	Formula I	-.55000*	.13962	.018	-.9971	-.1029
	Formula III	1.26667*	.13962	.000	.8195	1.7138
	Formula K-	.55667*	.13962	.017	.1095	1.0038
Formula III	Formula I	-1.81667*	.13962	.000	-2.2638	-1.3695
	Formula II	-1.26667*	.13962	.000	-1.7138	-.8195
	Formula K-	-.71000*	.13962	.004	-1.1571	-.2629
Formula K-	Formula I	-1.10667*	.13962	.000	-1.5538	-.6595
	Formula II	-.55667*	.13962	.017	-1.0038	-.1095
	Formula III	.71000*	.13962	.004	.2629	1.1571

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

Homogeneous Subsets

Daya_sebar

Tukey HSD[a]

Formula	N	Subset for alpha = 0.05			
		1	2	3	4
Formula III	3	4.4333			
Formula K-	3		5.1433		
Formula II	3			5.7000	
Formula I	3				6.2500
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 24. Data hasil uji stabilitas *pH*

Formula	**repikkasi 1**	**replikasi 2**	**replikasi 3**	**Rata - rata**	**Sd**
Formula 1	5,64	5,62	5,61	5,62	0,02
Formula 2	5,37	5,46	5,44	5,42	0,05
Formula 3	5,24	5,2	5,17	5,20	0,04
Kontrol negatif	5,49	5,52	5,51	5,51	0,02

Kontrol Negatif **:** sediaan emulgel dengan carbopol 1,5% (tanpa penambahan ekstrak)
Formula 1 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1%
Formula 2 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1,5%
Formula 3 : sediaan emulgel ekstrak sirih hijau (*Piper Betle L.*) dengan carbopol 2%

Lampiran 25. Hasil analisis SPSS uji stabilitas *pH*

Uji *One Way* ANOVA

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
pH	Formula I	.253	3	.	.964	3	.637
	Formula II	.304	3	.	.907	3	.407
	Formula III	.204	3	.	.993	3	.843
	Formula K-	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

pH

Levene Statistic	df1	df2	Sig.
2.173	3	8	.169

ANOVA

pH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.283	3	.094	95.941	.000
Within Groups	.008	8	.001		
Total	.291	11			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: pH

Tukey HSD

		Mean Difference (I-J)			95% Confidence Interval	
(I) Formula	(J) Formula		Std. Error	Sig.	Lower Bound	Upper Bound
Formula I	Formula II	.20000*	.02560	.000	.1180	.2820
	Formula III	.42000*	.02560	.000	.3380	.5020
	Formula K-	.11667*	.02560	.008	.0347	.1987
Formula II	Formula I	-.20000*	.02560	.000	-.2820	-.1180
	Formula III	.22000*	.02560	.000	.1380	.3020
	Formula K-	-.08333*	.02560	.046	-.1653	-.0013
Formula III	Formula I	-.42000*	.02560	.000	-.5020	-.3380
	Formula II	-.22000*	.02560	.000	-.3020	-.1380
	Formula K-	-.30333*	.02560	.000	-.3853	-.2213
Formula K-	Formula I	-.11667*	.02560	.008	-.1987	-.0347
	Formula II	.08333*	.02560	.046	.0013	.1653
	Formula III	.30333*	.02560	.000	.2213	.3853

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

Homogeneous Subsets

pH

Tukey HSD[a]

Formula	N	Subset for alpha = 0.05			
		1	2	3	4
Formula III	3	5.2033			
Formula II	3		5.4233		
Formula K-	3			5.5067	
Formula I	3				5.6233
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

T-test

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
pH	Equal variances assumed	11.087	.029	1.604	4	.184	.16000	.09978	-.11703	.43703
	Equal variances not assumed			1.604	2.031	.248	.16000	.09978	-.26299	.58299

Lampiran 26. Data hasil uji stabilitas daya lekat

Formula	repikkasi 1	replikasi 2	replikasi 3	Rata - rata	Sd
Formula 1	1,38	1,46	1,43	1,42	0,04
Formula 2	2,13	2,18	2,16	2,16	0,03
Formula 3	3,19	3,17	3,15	3,17	0,02
Kontrol negatif	2,54	2,56	2,53	2,54	0,02

Kontrol Negatif **:** sediaan emulgel dengan carbopol 1,5% (tanpa penambahan ekstrak)
Formula 1 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1%
Formula 2 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1,5%
Formula 3 : sediaan emulgel ekstrak sirih hijau (*Piper Betle L.*) dengan carbopol 2%

Lampiran 27. Hasil analisis SPSS uji stabilitas daya lekat

Uji *One Way* ANOVA

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Daya_lekat	Formula I	.232	3	.	.980	3	.726
	Formula II	.219	3	.	.987	3	.780
	Formula III	.175	3	.	1.000	3	1.000
	Formula K-	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Daya_lekat

Levene Statistic	df1	df2	Sig.
2.293	3	8	.155

ANOVA

Daya_lekat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.902	3	1.634	768.893	.000
Within Groups	.017	8	.002		
Total	4.919	11			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Daya_lekat

Tukey HSD

		Mean Difference (I-J)			95% Confidence Interval	
(I) Formula	(J) Formula		Std. Error	Sig.	Lower Bound	Upper Bound
Formula I	Formula II	-.73333*	.03764	.000	-.8539	-.6128
	Formula III	-1.74667*	.03764	.000	-1.8672	-1.6261
	Formula K-	-1.18333*	.03764	.000	-1.3039	-1.0628
Formula II	Formula I	.73333*	.03764	.000	.6128	.8539
	Formula III	-1.01333*	.03764	.000	-1.1339	-.8928
	Formula K-	-.45000*	.03764	.000	-.5705	-.3295
Formula III	Formula I	1.74667*	.03764	.000	1.6261	1.8672
	Formula II	1.01333*	.03764	.000	.8928	1.1339
	Formula K-	.56333*	.03764	.000	.4428	.6839
Formula K-	Formula I	1.18333*	.03764	.000	1.0628	1.3039
	Formula II	.45000*	.03764	.000	.3295	.5705
	Formula III	-.56333*	.03764	.000	-.6839	-.4428

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

Homogeneous Subsets

Daya_lekat

Tukey HSD[a]

Formula	N	Subset for alpha = 0.05			
		1	2	3	4
Formula I	3	1.4233			
Formula II	3		2.1567		
Formula K-	3			2.6067	
Formula III	3				3.1700
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

T-test

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
Daya_lekat	Equal variances assumed	.880	.791	-.482	4	.655	-.07333	.15217	-.49592	.34918
	Equal variances not assumed			-.482	3.888	.656	-.07333	.15217	-.50191	.35435

Lampiran 28. Data hasil uji stabilitas viskositas

Formula	repikkasi 1	replikasi 2	replikasi 3	Rata - rata	Sd
Formula 1	9,255	9,17	9,2	9,208	0,04
Formula 2	12,85	13,1	12,975	12,975	0,13
Formula 3	18,425	18,35	18,4	18,392	0,04
Kontrol negatif	14,8	15,025	14,6	14,808	0,21

Kontrol Negatif **:** sediaan emulgel dengan carbopol 1,5% (tanpa penambahan ekstrak)
Formula 1 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1%
Formula 2 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1,5%
Formula 3 : sediaan emulgel ekstrak sirih hijau (*Piper Betle L.*) dengan carbopol 2%

Lampiran 29. Hasil analisis SPSS uji stabilitas viskositas

Uji *One Way* ANOVA

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Viskositas	Formula I	.243	3	.	.972	3	.679
	Formula II	.175	3	.	1.000	3	1.000
	Formula III	.253	3	.	.964	3	.637
	Formula K-	.182	3	.	.999	3	.935

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Viskositas

Levene Statistic	df1	df2	Sig.
1.816	3	8	.222

ANOVA

Viskositas

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	131567291.7	3	43855763.89	2734.576	.000
Within Groups	128300.000	8	16037.500		
Total	131695591.7	11			

Post Hoc Tests

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
Formula I	Formula II	-3766.66667*	103.40052	.000	-4097.7915	-3435.5418
	Formula III	-9183.33333*	103.40052	.000	-9514.4582	-8852.2085
	Formula K-	-5600.00000*	103.40052	.000	-5931.1248	-5268.8752
Formula II	Formula I	3766.66667*	103.40052	.000	3435.5418	4097.7915
	Formula III	-5416.66667*	103.40052	.000	-5747.7915	-5085.5418
	Formula K-	-1833.33333*	103.40052	.000	-2164.4582	-1502.2085
Formula III	Formula I	9183.33333*	103.40052	.000	8852.2085	9514.4582
	Formula II	5416.66667*	103.40052	.000	5085.5418	5747.7915
	Formula K-	3583.33333*	103.40052	.000	3252.2085	3914.4582
Formula K-	Formula I	5600.00000*	103.40052	.000	5268.8752	5931.1248
	Formula II	1833.33333*	103.40052	.000	1502.2085	2164.4582
	Formula III	-3583.33333*	103.40052	.000	-3914.4582	-3252.2085

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

Homogeneous Subsets

Viskositas

Tukey HSD[a]

Formula	N	Subset for alpha = 0.05			
		1	2	3	4
Formula I	3	9208.3333			
Formula II	3		12975.0000		
Formula K-	3			14808.3333	
Formula III	3				18391.6667
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

T-test

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
Viskositas	Equal variances assumed	.851	.833	1.717	4	.161	316.66667	184.46820	-195.49360	828.82694
	Equal variances not assumed			1.717	3.948	.162	316.66667	184.46820	-198.14260	831.47594

Lampiran 30. Data hasil uji stabilitas daya sebar

Formula	Beban	Replikasi 1	Replikasi 2	Replikasi 3	Rata - rata	Sd
1	0	5,5	5,3	5,4	5,40	0,10
	50	6,2	5,9	6	6,03	0,15
	100	7	6,4	6,6	6,67	0,31
	200	7,3	7	7	7,10	0,17
2	0	5,1	5,2	5,2	5,17	0,06
	50	5,3	5,7	5,8	5,60	0,26
	100	5,7	5,9	6,1	5,90	0,20
	200	6	6	6,3	6,10	0,17
3	0	4	4,1	3,8	3,97	0,15
	50	4,2	4,2	4	4,13	0,12
	100	4,6	4,5	4,3	4,47	0,15
	200	5,3	5,4	4,7	5,13	0,38
4	0	4,7	4,7	4,9	4,77	0,12
	50	4,9	5	5,2	5,03	0,15
	100	5,1	5,2	5,5	5,27	0,21
	200	5,4	5,5	5,7	5,53	0,15

Kontrol Negatif **:** sediaan emulgel dengan carbopol 1,5% (tanpa penambahan ekstrak)
Formula 1 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1%
Formula 2 : sediaan emulgel ekstrak daun sirih hijau (*Piper Betle L.*) dengan carbopol 1,5%
Formula 3 : sediaan emulgel ekstrak sirih hijau (*Piper Betle L.*) dengan carbopol 2%

Lampiran 31. Hasil analisis SPSS uji stabilitas daya sebar

Uji *One Way* ANOVA

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Daya_sebar	Formula I	.276	3	.	.942	3	.537
	Formula II	.219	3	.	.987	3	.780
	Formula III	.276	3	.	.942	3	.537
	Formula K-	.232	3	.	.980	3	.726

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Daya_sebar

Levene Statistic	df1	df2	Sig.
.289	3	8	.832

ANOVA

Daya_sebar

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.484	3	1.495	49.142	.000
Within Groups	.243	8	.030		
Total	4.728	11			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Daya_sebar

Tukey HSD

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(I) Formula	(J) Formula				Lower Bound	Upper Bound
Formula I	Formula II	.56667*	.14240	.017	.1107	1.0227
	Formula III	1.65000*	.14240	.000	1.1940	2.1060
	Formula K-	1.08333*	.14240	.000	.6273	1.5393
Formula II	Formula I	-.56667*	.14240	.017	-1.0227	-.1107
	Formula III	1.08333*	.14240	.000	.6273	1.5393
	Formula K-	.51667*	.14240	.028	.0607	.9727
Formula III	Formula I	-1.65000*	.14240	.000	-2.1060	-1.1940
	Formula II	-1.08333*	.14240	.000	-1.5393	-.6273
	Formula K-	-.56667*	.14240	.017	-1.0227	-.1107
Formula K-	Formula I	-1.08333*	.14240	.000	-1.5393	-.6273
	Formula II	-.51667*	.14240	.028	-.9727	-.0607
	Formula III	.56667*	.14240	.017	.1107	1.0227

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

Homogeneous Subsets

Daya_sebar

Tukey HSD[a]

Formula	N	Subset for alpha = 0.05			
		1	2	3	4
Formula III	3	4.6500			
Formula K-	3		5.2167		
Formula II	3			5.7333	
Formula I	3				6.3000
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

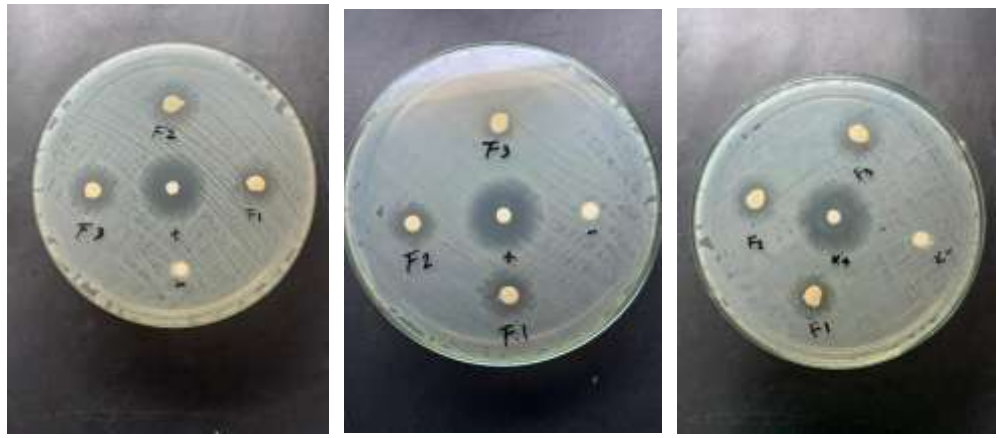
a. Uses Harmonic Mean Sample Size = 3.000.

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
Daya_sebar	Equal variances assumed	.080	.791	-.482	4	.655	-.07333	.15217	-.49582	.34916
	Equal variances not assumed			-.482	3.880	.656	-.07333	.15217	-.50101	.35435

Lampiran 32. Hasil diameter zona hambat sediaan emulgel

Gambar hasil diameter zona hambat sediaan



Formula	Besar zona Hambat (mm)			
	Replikasi 1	Replikasi 2	Replikasi 3	Rata-rata ± SD
Formula I	14,85	15,19	14,76	14,93 ± 0,22
Formula II	13,78	13,54	13,88	13,73 ± 0,17
Formula III	12,42	12,63	12,53	12,93 ± 0,10
Kontrol +	25,51	25,48	25,11	25,36 ± 0,22

Uji *One Way* ANOVA

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Zona_hambat_sediaan	Formula I	.310	3	.	.899	3	.381
	Formula II	.272	3	.	.947	3	.554
	Formula III	.229	3	.	.981	3	.739
	Formula K+	.361	3	.	.806	3	.129

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Zona_hambat_sediaan	Based on Mean	1.147	3	8	.388
	Based on Median	.138	3	8	.935
	Based on Median and with adjusted df	.138	3	5.700	.934
	Based on trimmed mean	1.000	3	8	.441

ANOVA

Zona_hambat_sediaan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	313.142	3	104.381	2923.151	.000
Within Groups	.286	8	.036		
Total	313.428	11			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Zona_hambat_sediaan
Tukey HSD

		Mean			95% Confidence Interval	
(I) Formula	(J) Formula	Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Formula I	Formula II	1.20000*	.15429	.000	.7059	1.6941
	Formula III	2.40000*	.15429	.000	1.9059	2.8941
	Formula K+	-10.43333*	.15429	.000	-10.9274	-9.9392
Formula II	Formula I	-1.20000*	.15429	.000	-1.6941	-.7059
	Formula III	1.20000*	.15429	.000	.7059	1.6941
	Formula K+	-11.63333*	.15429	.000	-12.1274	-11.1392
Formula III	Formula I	-2.40000*	.15429	.000	-2.8941	-1.9059
	Formula II	-1.20000*	.15429	.000	-1.6941	-.7059
	Formula K+	-12.83333*	.15429	.000	-13.3274	-12.3392
Formula K+	Formula I	10.43333*	.15429	.000	9.9392	10.9274
	Formula II	11.63333*	.15429	.000	11.1392	12.1274
	Formula III	12.83333*	.15429	.000	12.3392	13.3274

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

Homogeneous Subsets

Zona_hambat_sediaan

Tukey HSD[a]

Formula	N	Subset for alpha = 0.05			
		1	2	3	4
Formula III	3	12.5333			
Formula II	3		13.7333		
Formula I	3			14.9333	
Formula K+	3				25.3667
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Daya_lekat	Foemula I	.204	3	.	.993	3	.843
	Formula II	.177	3	.	1.000	3	.962
	Formula III	.184	3	.	.999	3	.927
	Formula kontrol -	.236	3	.	.977	3	.712
	Formula I stabilitas	.282	3	.	.936	3	.510
	Formula II stabilitas	.276	3	.	.942	3	.537
	Formula III stabilitas	.175	3	.	1.000	3	1.000
	Formula kontrol - stabilitas	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Daya_lekat	Based on Mean	1.645	7	16	.194
	Based on Median	1.301	7	16	.311
	Based on Median and with adjusted df	1.301	7	7.576	.362
	Based on trimmed mean	1.626	7	16	.199

ANOVA

Daya_lekat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.115	7	1.302	172.469	.000
Within Groups	.121	16	.008		
Total	9.236	23			

Multiple Comparisons

Dependent Variable: Daya_lekat
Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Foemula I	Formula II	-.71333*	.07095	.000	-.9590	-.4677
	Formula III	-1.68333*	.07095	.000	-1.9290	-1.4377
	Formula kontrol -	-1.09000*	.07095	.000	-1.3356	-.8444
	Formula I stabilitas	.09667	.07095	.861	-.1490	.3423
	Formula II stabilitas	-.57667*	.07095	.000	-.8223	-.3310
	Formula III stabilitas	-1.59667*	.07095	.000	-1.8423	-1.3510
	Formula kontrol - stabilitas	-1.00333*	.07095	.000	-1.2490	-.7577
Formula II	Foemula I	.71333*	.07095	.000	.4677	.9590
	Formula III	-.97000*	.07095	.000	-1.2156	-.7244
	Formula kontrol -	-.37667*	.07095	.001	-.6223	-.1310
	Formula I stabilitas	.81000*	.07095	.000	.5644	1.0556
	Formula II stabilitas	.13667	.07095	.554	-.1090	.3823
	Formula III stabilitas	-.88333*	.07095	.000	-1.1290	-.6377
	Formula kontrol - stabilitas	-.29000*	.07095	.015	-.5356	-.0444
Formula III	Foemula I	1.68333*	.07095	.000	1.4377	1.9290
	Formula II	.97000*	.07095	.000	.7244	1.2156
	Formula kontrol -	.59333*	.07095	.000	.3477	.8390
	Formula I stabilitas	1.78000*	.07095	.000	1.5344	2.0256
	Formula II stabilitas	1.10667*	.07095	.000	.8610	1.3523
	Formula III stabilitas	.08667	.07095	.914	-.1590	.3323
	Formula kontrol - stabilitas	.68000*	.07095	.000	.4344	.9256
Formula kontrol -	Foemula I	1.09000*	.07095	.000	.8444	1.3356
	Formula II	.37667*	.07095	.001	.1310	.6223
	Formula III	-.59333*	.07095	.000	-.8390	-.3477
	Formula I stabilitas	1.18667*	.07095	.000	.9410	1.4323
	Formula II stabilitas	.51333*	.07095	.000	.2677	.7590
	Formula III stabilitas	-.50667*	.07095	.000	-.7523	-.2610
	Formula kontrol - stabilitas	.08667	.07095	.914	-.1590	.3323
Formula I stabilitas	Foemula I	-.09667	.07095	.861	-.3423	.1490
	Formula II	-.81000*	.07095	.000	-1.0556	-.5644
	Formula III	-1.78000*	.07095	.000	-2.0256	-1.5344
	Formula kontrol -	-1.18667*	.07095	.000	-1.4323	-.9410
	Formula II stabilitas	-.67333*	.07095	.000	-.9190	-.4277
	Formula III stabilitas	-1.69333*	.07095	.000	-1.9390	-1.4477
	Formula kontrol - stabilitas	-1.10000*	.07095	.000	-1.3456	-.8544
Formula II stabilitas	Foemula I	.57667*	.07095	.000	.3310	.8223
	Formula II	-.13667	.07095	.554	-.3823	.1090
	Formula III	-1.10667*	.07095	.000	-1.3523	-.8610
	Formula kontrol -	-.51333*	.07095	.000	-.7590	-.2677
	Formula I stabilitas	.67333*	.07095	.000	.4277	.9190
	Formula III stabilitas	-1.02000*	.07095	.000	-1.2656	-.7744
	Formula kontrol - stabilitas	-.42667*	.07095	.000	-.6723	-.1810

Formula III stabilitas	Foemula I	1.59667*	.07095	.000	1.3510	1.8423
	Formula II	.88333*	.07095	.000	.6377	1.1290
	Formula III	-.08667	.07095	.914	-.3323	.1590
	Formula kontrol -	.50667*	.07095	.000	.2610	.7523
	Formula I stabilitas	1.69333*	.07095	.000	1.4477	1.9390
	Formula II stabilitas	1.02000*	.07095	.000	.7744	1.2656
	Formula kontrol - stabilitas	.59333*	.07095	.000	.3477	.8390
Formula kontrol - stabilitas	Foemula I	1.00333*	.07095	.000	.7577	1.2490
	Formula II	.29000*	.07095	.015	.0444	.5356
	Formula III	-.68000*	.07095	.000	-.9256	-.4344
	Formula kontrol -	-.08667	.07095	.914	-.3323	.1590
	Formula I stabilitas	1.10000*	.07095	.000	.8544	1.3456
	Formula II stabilitas	.42667*	.07095	.000	.1810	.6723
	Formula III stabilitas	-.59333*	.07095	.000	-.8390	-.3477

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

Daya_lekat

Tukey HSD[a]

Formula	N	Subset for alpha = 0.05			
		1	2	3	4
Formula I stabilitas	3	1.4767			
Foemula I	3	1.5733			
Formula II stabilitas	3		2.1500		
Formula II	3		2.2867		
Formula kontrol - stabilitas	3			2.5767	
Formula kontrol -	3			2.6633	
Formula III stabilitas	3				3.1700
Formula III	3				3.2567
Sig.		.861	.554	.914	.914

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Daya_sekar	Foemula I	.175	3	.	1.000	3	1.000
	Formula II	.175	3	.	1.000	3	1.000
	Formula III	.292	3	.	.923	3	.463
	Formula kontrol -	.268	3	.	.951	3	.573
	Formula I stabilitas	.276	3	.	.942	3	.537
	Formula II stabilitas	.219	3	.	.987	3	.780
	Formula III stabilitas	.276	3	.	.942	3	.537
	Formula kontrol - stabilitas	.232	3	.	.980	3	.726

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Daya_sekar	Based on Mean	.258	7	16	.962
	Based on Median	.068	7	16	.999
	Based on Median and with adjusted df	.068	7	13.603	.999
	Based on trimmed mean	.240	7	16	.968

ANOVA

Daya_sekar

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.971	7	1.424	47.752	.000
Within Groups	.477	16	.030		
Total	10.448	23			

Multiple Comparisons

Dependent Variable: Daya_sekar
Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Foemula I	Formula II	.55000*	.14102	.022	.0618	1.0382
	Formula III	1.81667*	.14102	.000	1.3284	2.3049
	Formula kontrol -	1.10667*	.14102	.000	.6184	1.5949
	Formula I stabilitas	-.05000	.14102	1.000	-.5382	.4382
	Formula II stabilitas	.51667*	.14102	.034	.0284	1.0049
	Formula III stabilitas	1.60000*	.14102	.000	1.1118	2.0882
	Formula kontrol - stabilitas	1.03333*	.14102	.000	.5451	1.5216
Formula II	Foemula I	-.55000*	.14102	.022	-1.0382	-.0618
	Formula III	1.26667*	.14102	.000	.7784	1.7549
	Formula kontrol -	.55667*	.14102	.020	.0684	1.0449
	Formula I stabilitas	-.60000*	.14102	.011	-1.0882	-.1118
	Formula II stabilitas	-.03333	.14102	1.000	-.5216	.4549
	Formula III stabilitas	1.05000*	.14102	.000	.5618	1.5382
	Formula kontrol - stabilitas	.48333	.14102	.053	-.0049	.9716
Formula III	Foemula I	-1.81667*	.14102	.000	-2.3049	-1.3284
	Formula II	-1.26667*	.14102	.000	-1.7549	-.7784
	Formula kontrol -	-.71000*	.14102	.002	-1.1982	-.2218
	Formula I stabilitas	-1.86667*	.14102	.000	-2.3549	-1.3784
	Formula II stabilitas	-1.30000*	.14102	.000	-1.7882	-.8118
	Formula III stabilitas	-.21667	.14102	.778	-.7049	.2716
	Formula kontrol - stabilitas	-.78333*	.14102	.001	-1.2716	-.2951
Formula kontrol -	Foemula I	-1.10667*	.14102	.000	-1.5949	-.6184
	Formula II	-.55667*	.14102	.020	-1.0449	-.0684
	Formula III	.71000*	.14102	.002	.2218	1.1982
	Formula I stabilitas	-1.15667*	.14102	.000	-1.6449	-.6684

	Formula II stabilitas	-.59000*	.14102	.013	-1.0782	-.1018
	Formula III stabilitas	.49333*	.14102	.047	.0051	.9816
	Formula kontrol - stabilitas	-.07333	.14102	.999	-.5616	.4149
Formula I stabilitas	Foemula I	.05000	.14102	1.000	-.4382	.5382
	Formula II	.60000*	.14102	.011	.1118	1.0882
	Formula III	1.86667*	.14102	.000	1.3784	2.3549
	Formula kontrol -	1.15667*	.14102	.000	.6684	1.6449
	Formula II stabilitas	.56667*	.14102	.017	.0784	1.0549
	Formula III stabilitas	1.65000*	.14102	.000	1.1618	2.1382
	Formula kontrol - stabilitas	1.08333*	.14102	.000	.5951	1.5716
Formula II stabilitas	Foemula I	-.51667*	.14102	.034	-1.0049	-.0284
	Formula II	.03333	.14102	1.000	-.4549	.5216
	Formula III	1.30000*	.14102	.000	.8118	1.7882
	Formula kontrol -	.59000*	.14102	.013	.1018	1.0782
	Formula I stabilitas	-.56667*	.14102	.017	-1.0549	-.0784
	Formula III stabilitas	1.08333*	.14102	.000	.5951	1.5716
	Formula kontrol - stabilitas	.51667*	.14102	.034	.0284	1.0049
Formula III stabilitas	Foemula I	-1.60000*	.14102	.000	-2.0882	-1.1118
	Formula II	-1.05000*	.14102	.000	-1.5382	-.5618
	Formula III	.21667	.14102	.778	-.2716	.7049
	Formula kontrol -	-.49333*	.14102	.047	-.9816	-.0051
	Formula I stabilitas	-1.65000*	.14102	.000	-2.1382	-1.1618
	Formula II stabilitas	-1.08333*	.14102	.000	-1.5716	-.5951
	Formula kontrol - stabilitas	-.56667*	.14102	.017	-1.0549	-.0784
Formula kontrol - stabilitas	Foemula I	-1.03333*	.14102	.000	-1.5216	-.5451
	Formula II	-.48333	.14102	.053	-.9716	.0049
	Formula III	.78333*	.14102	.001	.2951	1.2716
	Formula kontrol -	.07333	.14102	.999	-.4149	.5616
	Formula I stabilitas	-1.08333*	.14102	.000	-1.5716	-.5951
	Formula II stabilitas	-.51667*	.14102	.034	-1.0049	-.0284
	Formula III stabilitas	.56667*	.14102	.017	.0784	1.0549

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

Daya_sekar

Tukey HSD[a]

Formula	N	Subset for alpha = 0.05				
		1	2	3	4	5
Formula III	3	4.4333				
Formula III stabilitas	3	4.6500				
Formula kontrol -	3		5.1433			
Formula kontrol - stabilitas	3		5.2167	5.2167		
Formula II	3			5.7000	5.7000	
Formula II stabilitas	3				5.7333	
Foemula I	3					6.2500
Formula I stabilitas	3					6.3000
Sig.		.778	.999	.053	1.000	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Viskositas	Foemula I	.285	3	.	.932	3	.497
	Formula II	.276	3	.	.942	3	.537
	Formula III	.175	3	.	1.000	3	1.000
	Formula kontrol -	.208	3	.	.992	3	.826
	Formula I stabilitas	.243	3	.	.972	3	.679
	Formula II stabilitas	.175	3	.	1.000	3	1.000
	Formula III stabilitas	.253	3	.	.964	3	.637
	Formula kontrol - stabilitas	.182	3	.	.999	3	.935

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Viskositas	Based on Mean	1.633	7	16	.197
	Based on Median	.965	7	16	.488
	Based on Median and with adjusted df	.965	7	8.506	.509
	Based on trimmed mean	1.590	7	16	.209

ANOVA

Viskositas

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	262468307.292	7	37495472.470	1739.088	.000
Within Groups	344966.667	16	21560.417		
Total	262813273.958	23			

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
Foemula I	Formula II	-3766.66667*	119.89000	.000	-4181.7439	-3351.5894
	Formula III	-9141.66667*	119.89000	.000	-9556.7439	-8726.5894
	Formula kontrol -	-5566.66667*	119.89000	.000	-5981.7439	-5151.5894
	Formula I stabilitas	350.00000	119.89000	.133	-65.0772	765.0772
	Formula II stabilitas	-3416.66667*	119.89000	.000	-3831.7439	-3001.5894
	Formula III stabilitas	-8833.33333*	119.89000	.000	-9248.4106	-8418.2561
	Formula kontrol - stabilitas	-5250.00000*	119.89000	.000	-5665.0772	-4834.9228
Formula II	Foemula I	3766.66667*	119.89000	.000	3351.5894	4181.7439
	Formula III	-5375.00000*	119.89000	.000	-5790.0772	-4959.9228
	Formula kontrol -	-1800.00000*	119.89000	.000	-2215.0772	-1384.9228
	Formula I stabilitas	4116.66667*	119.89000	.000	3701.5894	4531.7439
	Formula II stabilitas	350.00000	119.89000	.133	-65.0772	765.0772
	Formula III stabilitas	-5066.66667*	119.89000	.000	-5481.7439	-4651.5894
	Formula kontrol - stabilitas	-1483.33333*	119.89000	.000	-1898.4106	-1068.2561
Formula III	Foemula I	9141.66667*	119.89000	.000	8726.5894	9556.7439
	Formula II	5375.00000*	119.89000	.000	4959.9228	5790.0772
	Formula kontrol -	3575.00000*	119.89000	.000	3159.9228	3990.0772
	Formula I stabilitas	9491.66667*	119.89000	.000	9076.5894	9906.7439
	Formula II stabilitas	5725.00000*	119.89000	.000	5309.9228	6140.0772
	Formula III stabilitas	308.33333	119.89000	.235	-106.7439	723.4106
	Formula kontrol - stabilitas	3891.66667*	119.89000	.000	3476.5894	4306.7439
Formula kontrol -	Foemula I	5566.66667*	119.89000	.000	5151.5894	5981.7439
	Formula II	1800.00000*	119.89000	.000	1384.9228	2215.0772
	Formula III	-3575.00000*	119.89000	.000	-3990.0772	-3159.9228
	Formula I stabilitas	5916.66667*	119.89000	.000	5501.5894	6331.7439
	Formula II stabilitas	2150.00000*	119.89000	.000	1734.9228	2565.0772
	Formula III stabilitas	-3266.66667*	119.89000	.000	-3681.7439	-2851.5894
	Formula kontrol - stabilitas	316.66667	119.89000	.211	-98.4106	731.7439
Formula I stabilitas	Foemula I	-350.00000	119.89000	.133	-765.0772	65.0772
	Formula II	-4116.66667*	119.89000	.000	-4531.7439	-3701.5894
	Formula III	-9491.66667*	119.89000	.000	-9906.7439	-9076.5894

	Formula kontrol -	-5916.66667*	119.89000	.000	-6331.7439	-5501.5894
	Formula II stabilitas	-3766.66667*	119.89000	.000	-4181.7439	-3351.5894
	Formula III stabilitas	-9183.33333*	119.89000	.000	-9598.4106	-8768.2561
	Formula kontrol - stabilitas	-5600.00000*	119.89000	.000	-6015.0772	-5184.9228
Formula II stabilitas	Foemula I	3416.66667*	119.89000	.000	3001.5894	3831.7439
	Formula II	-350.00000	119.89000	.133	-765.0772	65.0772
	Formula III	-5725.00000*	119.89000	.000	-6140.0772	-5309.9228
	Formula kontrol -	-2150.00000*	119.89000	.000	-2565.0772	-1734.9228
	Formula I stabilitas	3766.66667*	119.89000	.000	3351.5894	4181.7439
	Formula III stabilitas	-5416.66667*	119.89000	.000	-5831.7439	-5001.5894
	Formula kontrol - stabilitas	-1833.33333*	119.89000	.000	-2248.4106	-1418.2561
Formula III stabilitas	Foemula I	8833.33333*	119.89000	.000	8418.2561	9248.4106
	Formula II	5066.66667*	119.89000	.000	4651.5894	5481.7439
	Formula III	-308.33333	119.89000	.235	-723.4106	106.7439
	Formula kontrol -	3266.66667*	119.89000	.000	2851.5894	3681.7439
	Formula I stabilitas	9183.33333*	119.89000	.000	8768.2561	9598.4106
	Formula II stabilitas	5416.66667*	119.89000	.000	5001.5894	5831.7439
	Formula kontrol - stabilitas	3583.33333*	119.89000	.000	3168.2561	3998.4106
Formula kontrol - stabilitas	Foemula I	5250.00000*	119.89000	.000	4834.9228	5665.0772
	Formula II	1483.33333*	119.89000	.000	1068.2561	1898.4106
	Formula III	-3891.66667*	119.89000	.000	-4306.7439	-3476.5894
	Formula kontrol -	-316.66667	119.89000	.211	-731.7439	98.4106
	Formula I stabilitas	5600.00000*	119.89000	.000	5184.9228	6015.0772
	Formula II stabilitas	1833.33333*	119.89000	.000	1418.2561	2248.4106
	Formula III stabilitas	-3583.33333*	119.89000	.000	-3998.4106	-3168.2561

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

Viskositas

Tukey HSD[a]

Formula	N	Subset for alpha = 0.05			
		1	2	3	4
Formula I stabilitas	3	9208.3333			
Foemula I	3	9558.3333			
Formula II stabilitas	3		12975.0000		
Formula II	3		13325.0000		
Formula kontrol - stabilitas	3			14808.3333	
Formula kontrol -	3			15125.0000	
Formula III stabilitas	3				18391.6667
Formula III	3				18700.0000
Sig.		.133	.133	.211	.235

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
pH	Foemula I	.332	3	.	.864	3	.278
	Formula II	.175	3	.	1.000	3	1.000
	Formula III	.253	3	.	.964	3	.637
	Formula kontrol -	.321	3	.	.881	3	.328
	Formula I stabilitas	.253	3	.	.964	3	.637
	Formula II stabilitas	.304	3	.	.907	3	.407
	Formula III stabilitas	.204	3	.	.993	3	.843
	Formula kontrol - stabilitas	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
pH	Based on Mean	1.629	7	16	.198
	Based on Median	.542	7	16	.791
	Based on Median and with adjusted df	.542	7	7.011	.781
	Based on trimmed mean	1.534	7	16	.226

ANOVA

pH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.748	7	.107	22.310	.000
Within Groups	.077	16	.005		
Total	.825	23			

Multiple Comparisons

Dependent Variable: pH
Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Foemula I	Formula II	.33333*	.05652	.000	.1377	.5290
	Formula III	.51000*	.05652	.000	.3143	.7057
	Formula kontrol -	.19000	.05652	.060	-.0057	.3857
	Formula I stabilitas	.16000	.05652	.155	-.0357	.3557
	Formula II stabilitas	.36000*	.05652	.000	.1643	.5557
	Formula III stabilitas	.58000*	.05652	.000	.3843	.7757
	Formula kontrol - stabilitas	.27667*	.05652	.003	.0810	.4723
Formula II	Foemula I	-.33333*	.05652	.000	-.5290	-.1377
	Formula III	.17667	.05652	.093	-.0190	.3723
	Formula kontrol -	-.14333	.05652	.248	-.3390	.0523
	Formula I stabilitas	-.17333	.05652	.103	-.3690	.0223
	Formula II stabilitas	.02667	.05652	1.000	-.1690	.2223
	Formula III stabilitas	.24667*	.05652	.009	.0510	.4423
	Formula kontrol - stabilitas	-.05667	.05652	.967	-.2523	.1390
Formula III	Foemula I	-.51000*	.05652	.000	-.7057	-.3143
	Formula II	-.17667	.05652	.093	-.3723	.0190
	Formula kontrol -	-.32000*	.05652	.001	-.5157	-.1243
	Formula I stabilitas	-.35000*	.05652	.000	-.5457	-.1543
	Formula II stabilitas	-.15000	.05652	.207	-.3457	.0457
	Formula III stabilitas	.07000	.05652	.908	-.1257	.2657
	Formula kontrol - stabilitas	-.23333*	.05652	.014	-.4290	-.0377
Formula kontrol -	Foemula I	-.19000	.05652	.060	-.3857	.0057
	Formula II	.14333	.05652	.248	-.0523	.3390
	Formula III	.32000*	.05652	.001	.1243	.5157
	Formula I stabilitas	-.03000	.05652	.999	-.2257	.1657
	Formula II stabilitas	.17000	.05652	.114	-.0257	.3657
	Formula III stabilitas	.39000*	.05652	.000	.1943	.5857
	Formula kontrol - stabilitas	.08667	.05652	.780	-.1090	.2823
Formula I stabilitas	Foemula I	-.16000	.05652	.155	-.3557	.0357
	Formula II	.17333	.05652	.103	-.0223	.3690
	Formula III	.35000*	.05652	.000	.1543	.5457
	Formula kontrol -	.03000	.05652	.999	-.1657	.2257
	Formula II stabilitas	.20000*	.05652	.043	.0043	.3957
	Formula III stabilitas	.42000*	.05652	.000	.2243	.6157
	Formula kontrol - stabilitas	.11667	.05652	.474	-.0790	.3123
Formula II stabilitas	Foemula I	-.36000*	.05652	.000	-.5557	-.1643
	Formula II	-.02667	.05652	1.000	-.2223	.1690
	Formula III	.15000	.05652	.207	-.0457	.3457
	Formula kontrol -	-.17000	.05652	.114	-.3657	.0257
	Formula I stabilitas	-.20000*	.05652	.043	-.3957	-.0043
	Formula III stabilitas	.22000*	.05652	.022	.0243	.4157
	Formula kontrol - stabilitas	-.08333	.05652	.810	-.2790	.1123

Formula III stabilitas	Foemula I	-.58000*	.05652	.000	-.7757	-.3843
	Formula II	-.24667*	.05652	.009	-.4423	-.0510
	Formula III	-.07000	.05652	.908	-.2657	.1257
	Formula kontrol -	-.39000*	.05652	.000	-.5857	-.1943
	Formula I stabilitas	-.42000*	.05652	.000	-.6157	-.2243
	Formula II stabilitas	-.22000*	.05652	.022	-.4157	-.0243
	Formula kontrol - stabilitas	-.30333*	.05652	.001	-.4990	-.1077
Formula kontrol - stabilitas	Foemula I	-.27667*	.05652	.003	-.4723	-.0810
	Formula II	.05667	.05652	.967	-.1390	.2523
	Formula III	.23333*	.05652	.014	.0377	.4290
	Formula kontrol -	-.08667	.05652	.780	-.2823	.1090
	Formula I stabilitas	-.11667	.05652	.474	-.3123	.0790
	Formula II stabilitas	.08333	.05652	.810	-.1123	.2790
	Formula III stabilitas	.30333*	.05652	.001	.1077	.4990

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

pH

Tukey HSD[a]

		Subset for alpha = 0.05				
Formula	N	1	2	3	4	5
Formula III stabilitas	3	5.2033				
Formula III	3	5.2733	5.2733			
Formula II stabilitas	3		5.4233	5.4233		
Formula II	3		5.4500	5.4500	5.4500	
Formula kontrol - stabilitas	3			5.5067	5.5067	
Formula kontrol -	3			5.5933	5.5933	5.5933
Formula I stabilitas	3				5.6233	5.6233
Foemula I	3					5.7833
Sig.		.908	.093	.114	.103	.060

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.