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Lampiran 1. Surat keterangan hasil determinasi daun sirih



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Noanor : 007/DET/UPT-LAB/25.04.2022
 Hal : Hasil determinasi tumbuhan
 Lamp, : -

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 Universitas Setia Budi, Surakarta
 Nama sampel : *Piper betle* L./ Sirih

HASIL DETERMINASI TUMBUHAN

Klasifikasi
 Kingdom : Plantae
 Super Divisi : Spermatophyta
 Divisi : Magnoliophyta
 Kelas : Magnoliopsida
 Ordo : Piperales
 Famili : Piperaceae
 Genus : Piper
 Species : *Piper betle* L.

Hasil Determinasi menurut: Steenis, C.G.G.J.V., Bloembergen, H., Eyma, P.J. 1992 :
 1a - 2b - 3b - 4b - 6b - 7b - 9a, golongan 4, 41b - 42b - 43b - 54b - 59b - 61b - 62b - 63a
 - 64a, familia 37. 1a. *Piper betle* L.

Deskripsi :
 Habitus : Herba, tumbuh memanjat.
 Akar : Akar serabut.
 Batang : Batang segitiga, beralur.
 Daun : Daun tunggal, duduk daun berseling atau tersebar, herbaceous, daun penumpu
 cepat rontok dan meninggalkan tanda bekas berbentuk cincin. Helaiian daun

Lampiran 2. Pengolahan simplisia

<p>Gambar daun sirih</p> 	<p>Penjemuran daun sirih</p> 
<p>Serbuk daun sirih</p> 	<p>Proses maserai</p> 
<p>Rotary evaporator</p> 	<p>Ekstrak kental daun sirih</p> 

Lampiran 3. Perhitungan rendemen daun sirih

1. Rendemen daun sirih kering terhadap daun sirih basah

% rendemen kering terhadap bobot basah

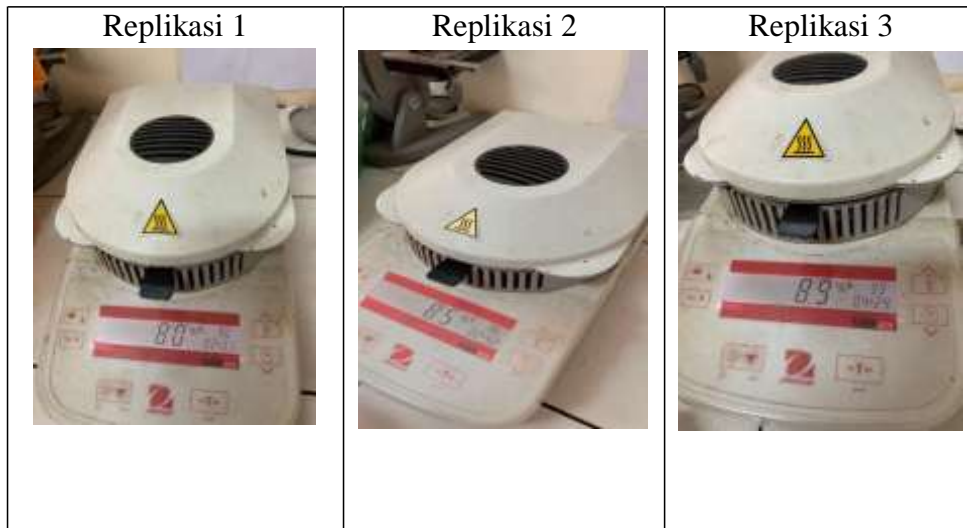
$$\begin{aligned} &= \frac{\text{Bobot daun kering}}{\text{Bobot daun basah}} \times 100\% \\ &= \frac{1983}{10000} \times 100\% \\ &= 19,83\% \end{aligned}$$

2. Rendemen ekstrak etanol daun sirih

bobot ekstrak – bobot botol kosong : 261 g – 156 g = 105 g

$$\begin{aligned} \text{\% rendemen} &= \frac{\text{bobot ekstrak}}{\text{bobot serbuk}} \times 100\% \\ &= \frac{105}{1000 \text{ g}} \times 100\% = 10,5\% \end{aligned}$$

Lampiran 4. Penetapan kadar air metode *moisture analyzer*







Serbuk	Penimbangan (gram)	Susut Pengerinan (%)
Daun Sirih	2,05 g	8,5%
	2,08 g	8,0%
	2,10 g	8,9%

$$\text{Rata-rata} = \frac{8,5\% + 8,0\% + 8,9\%}{3}$$

$$= 8,46\%$$

Lampiran 5. Penetapan kadar air simplisia metode *sterling toluene*

<p>Alat sterling bidwell</p> 	<p>Replikasi 1</p> 
<p>Replikasi 2</p> 	<p>Replikasi 3</p> 

Lampiran 6. Perhitungan kadar air menggunakan metode *sterling toluene*

Kadar air simplisia

$$\% \text{ kadar air} = \frac{\text{volume air terbaca}}{\text{bobot sampel}} \times 100\%$$

$$\begin{aligned} \text{Replikasi 1} &= \frac{1,7 \text{ ml}}{20,875 \text{ g}} \times 100\% \\ &= 8,14\% \end{aligned}$$

$$\begin{aligned} \text{Replikasi 2} &= \frac{1,9 \text{ ml}}{20,931 \text{ g}} \times 100\% \\ &= 9,07\% \end{aligned}$$

$$\begin{aligned} \text{Replikasi 3} &= \frac{1,5 \text{ ml}}{20,7054 \text{ g}} \times 100\% \\ &= 7,24\% \end{aligned}$$

$$\begin{aligned} \text{Rata-rata kadar air} &= \frac{8,14\% + 9,07\% + 7,24\%}{3} \\ &= 8,15\% \end{aligned}$$

Lampiran 7. Penetapan ekstrak etanol daun sirih menggunakan metode *gravimetric*

Pemanasan pada oven



Desokator



Lampiran 8. Kadar ekstrak etanol daun sirih menggunakan metode *gravimetric*

% kadar air =

$$\frac{\text{bobot awal sebelum dikeringkan} - \text{bobot setelah dikeringkan}}{\text{bobot bahan awal sebelum dikeringkan}} \times 100\%$$

$$\text{Replikasi 1} = \frac{2,0071 - 1,8293}{2,0071} \times 100\%$$

$$= 8,86\%$$

$$\text{Replikasi 2} = \frac{2,0064 - 1,8268}{2,0064} \times 100\%$$

$$= 8,95\%$$







$$\text{Replikasi 3} = \frac{1,9280 - 1,7586}{1,9280} \times 100\%$$

$$= 8,79\%$$







$$\text{Rata-rata kadar air} = \frac{8,86\% + 8,95\% + 8,79\%}{3}$$

$$= 8,87\%$$

Lampiran 9. Skrining fitokimia daun sirih

Skrining fitokimia ekstrak daun sirih	
<p>Alkaloid</p> 	<p>Flavonoid</p> 
<p>Saponin</p> 	<p>Steroid</p> 
<p>Tanin</p> 	<p>Minyak atsiri</p> 

Lampiran 10. Pembuatan serum ekstrak etanol daun sirih

<p>Carbopol 940</p> 	<p>Gliserin</p> 
<p>TEA</p> 	<p>Nipagin</p> 
<p>Basis</p> 	<p>Serum ekstrak etanol</p> 

Lampiran 11. Pengujian mutu fisik sediaan serum

Alat Uji Homogenitas



Alat Uji daya sebar



Alat Uji pH



Alat Uji Viskositas



Lampiran 12. Data pengujian mutu fisik sediaan serum

1. Uji daya sebar sebelum stabilitas

Formula	Replikasi	Tanpa beban (0)	Beban 50 g (gram)	Beban 100 g (gram)
Formula 1	1	4,6	5,1	5,5
	2	4,7	5,3	5,6
	3	4,5	5,2	6,0
Rata-rata ± SD		4,6 ± 0,1	5,2 ± 0,08	5,7 ± 0,26
Formula 2	1	4,5	5,0	5,7
	2	4,4	5,1	5,9
	3	4,6	5,3	6,0
Rata-rata ± SD		4,5 ± 0,1	5,1 ± 0,15	5,8 ± 0,15
Formula 3	1	4,5	5,2	6,0
	2	4,9	5,4	6,2
	3	5,0	5,6	6,7
Rata-rata ± SD		4,8 ± 0,26	5,4 ± 0,2	6,3 ± 0,3

2. Uji daya sebar sesudah stabilitas

Formula	Replikasi	Tanpa beban (0)	Beban 50 g (gram)	Beban 100 g (gram)
Formula 1	1	5,0	6,1	6,5
	2	5,3	6,3	6,9
	3	5,5	6,5	7,3
Rata-rata ± SD		5,6 ± 0,2	6,3 ± 0,16	6,9 ± 0,4
Formula 2	1	5,3	5,9	6,5
	2	5,5	6,3	6,9
	3	5,6	6,6	7,2
Rata-rata ± SD		5,4 ± 0,15	6,26 ± 0,35	6,8 ± 0,35
Formula 3	1	5,2	6,3	7,1
	2	5,6	6,5	7,5
	3	5,9	6,8	7,8
Rata-rata ± SD		5,56 ± 0,35	6,53 ± 0,25	7,46 ± 0,35

3. Uji pH sebelum stabilitas

Replikasi	pH		
	Formula 1	Formula 2	Formula 3
1	6,23	5,31	5,18
2	6,20	5,30	5,17
3	6,21	5,25	5,15
Rata-rata ± SD	6,21 ± 0,01	5,28 ± 0,03	5,16 ± 0,01

4. Uji pH sesudah stabilitas

Replikasi	pH		
	Formula 1	Formula 2	Formula 3
1	6,01	5,00	4,40
2	5,91	4,99	4,30
3	5,94	4,95	4,33
Rata-rata ± SD	5,95 ± 0,01	4,98 ± 0,02	4,34 ± 0,05

5. Uji viskositas sebelum stabilitas

Replikasi	Viskositas		
	Formula 1	Formula 2	Formula 3
1	900	800	650
2	850	700	550
3	800	650	600
Rata-rata ± SD	850 ± 50	716,66 ± 76,37	600 ± 50

6. Uji viskositas sesudah stabilitas

Replikasi	Viskositas		
	Formula 1	Formula 2	Formula 3
1	700	700	450
2	650	650	550
3	800	500	500
Rata-rata ± SD	716,66 ± 76,37	616,66 ± 104,08	500 ± 50

Lampiran 13. Hasil analisis SPSS pengujian mutu fisik dan stabilitas serum ekstrak etanol.

1. Uji mutu fisik daya sebar

Tests of Normality

	Beban	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
F1	Tanpa beban	.175	3	.	1.000	3	1.000
	Beban 50 gram	.253	3	.	.964	3	.637
	Beban 100 gram	.314	3	.	.893	3	.363
F2	Tanpa beban	.175	3	.	1.000	3	1.000
	Beban 50 gram	.175	3	.	1.000	3	1.000
	Beban 100 gram	.253	3	.	.964	3	.637
F3	Tanpa beban	.314	3	.	.893	3	.363
	Beban 50 gram	.175	3	.	1.000	3	1.000
	Beban 100 gram	.276	3	.	.942	3	.537

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
F1	Based on Mean	2.286	2	6	.183
	Based on Median	.412	2	6	.680
	Based on Median and with adjusted df	.412	2	3.229	.693
	Based on trimmed mean	2.067	2	6	.207
F2	Based on Mean	.516	2	6	.621
	Based on Median	.200	2	6	.824
	Based on Median and with adjusted df	.200	2	4.545	.826
	Based on trimmed mean	.493	2	6	.634
F3	Based on Mean	.857	2	6	.471
	Based on Median	.194	2	6	.828
	Based on Median and with adjusted df	.194	2	4.747	.830
	Based on trimmed mean	.788	2	6	.497

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
F1	Between Groups	2.162	2	1.081	31.387	.001
	Within Groups	.207	6	.034		
	Total	2.369	8			
F2	Between Groups	2.409	2	1.204	83.385	.000
	Within Groups	.087	6	.014		
	Total	2.496	8			
F3	Between Groups	3.420	2	1.710	21.375	.002
	Within Groups	.480	6	.080		
	Total	3.900	8			

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) Beban	(J) Beban	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
F1	Tanpa beban	Beban 50 gram	-.63333*	.15154	.014	-1.0983	-.1684
		Beban 100 gram	-1.20000*	.15154	.001	-1.6650	-.7350
	Beban 50 gram	Tanpa beban	.63333*	.15154	.014	.1684	1.0983
		Beban 100 gram	-.56667*	.15154	.022	-1.0316	-.1017
	Beban 100 gram	Tanpa beban	1.20000*	.15154	.001	.7350	1.6650
		Beban 50 gram	.56667*	.15154	.022	.1017	1.0316
F2	Tanpa beban	Beban 50 gram	-.60000*	.09813	.002	-.9011	-.2989
		Beban 100 gram	-1.26667*	.09813	.000	-1.5678	-.9656
	Beban 50 gram	Tanpa beban	.60000*	.09813	.002	.2989	.9011
		Beban 100 gram	-.66667*	.09813	.001	-.9678	-.3656
	Beban 100 gram	Tanpa beban	1.26667*	.09813	.000	.9656	1.5678
		Beban 50 gram	.66667*	.09813	.001	.3656	.9678
F3	Tanpa beban	Beban 50 gram	-.60000	.23094	.090	-1.3086	.1086

Beban 50 gram	Beban 100 gram	-1.50000*	.23094	.002	-2.2086	-.7914
	Tanpa beban	.60000	.23094	.090	-.1086	1.3086
Beban 100 gram	Beban 100 gram	-.90000*	.23094	.019	-1.6086	-.1914
	Tanpa beban	1.50000*	.23094	.002	.7914	2.2086
Beban 50 gram	Beban 50 gram	.90000*	.23094	.019	.1914	1.6086

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

2. Uji Mutu Fisik pH

Tests of Normality

Kelompok	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
1.00	.253	3	.	.964	3	.637
2.00	.328	3	.	.871	3	.298
3.00	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Formula	Based on Mean	2.286	2	6	.183
	Based on Median	.333	2	6	.729
	Based on Median and with adjusted df	.333	2	3.176	.739
	Based on trimmed mean	2.023	2	6	.213

ANOVA

Formula

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.969	2	.984	1968.622	.000
Within Groups	.003	6	.000		
Total	1.972	8			

Multiple Comparisons

Dependent Variable: Formula

Tukey HSD

(I) Kelompok	(J) Kelompok	Mean Difference (I- J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	.92667*	.01826	.000	.8706	.9827
	3.00	1.04667*	.01826	.000	.9906	1.1027
2.00	1.00	-.92667*	.01826	.000	-.9827	-.8706
	3.00	.12000*	.01826	.001	.0640	.1760
3.00	1.00	-1.04667*	.01826	.000	-1.1027	-.9906
	2.00	-.12000*	.01826	.001	-.1760	-.0640

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

3. Uji Viskositas

Tests of Normality

	Kelompok	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
Formula	1.00	.175	3	.	1.000	3	1.000
	2.00	.253	3	.	.964	3	.637
	3.00	.175	3	.	1.000	3	1.000

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Formula	Based on Mean	.516	2	6	.621
	Based on Median	.200	2	6	.824
	Based on Median and with adjusted df	.200	2	4.545	.826
	Based on trimmed mean	.493	2	6	.634

ANOVA

Formula

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	93888.889	2	46944.444	13.000	.007
Within Groups	21666.667	6	3611.111		
Total	115555.556	8			

Multiple Comparisons

Dependent Variable: Formula

Tukey HSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	133.333	49.065	.077	-17.21	283.88
	3.00	250.000*	49.065	.005	99.45	400.55
2.00	1.00	-133.333	49.065	.077	-283.88	17.21
	3.00	116.667	49.065	.119	-33.88	267.21
3.00	1.00	-250.000*	49.065	.005	-400.55	-99.45
	2.00	-116.667	49.065	.119	-267.21	33.88

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

Lampiran 14. Pengujian mutu fisik dan stabilitas sediaan serum

1. Uji daya sebar

Tests of Normality

	Beban	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Formula 1 sebelum stabilitas	0 gram	.175	3	.	1.000	3	1.000
	50 gram	.175	3	.	1.000	3	1.000
	100 gram	.314	3	.	.893	3	.363
Formula 1 setelah stabilitas	0 gram	.219	3	.	.987	3	.780
	50 gram	.175	3	.	1.000	3	1.000
	100 gram	.175	3	.	1.000	3	1.000
Formula 2 sebelum stabilitas	0 gram	.175	3	.	1.000	3	1.000
	50 gram	.253	3	.	.964	3	.637
	100 gram	.253	3	.	.964	3	.637
Formula 2 setelah stabilitas	0 gram	.253	3	.	.964	3	.637
	50 gram	.204	3	.	.993	3	.843
	100 gram	.204	3	.	.993	3	.843
Formula 3 sebelum stabilitas	0 gram	.314	3	.	.893	3	.363
	50 gram	.175	3	.	1.000	3	1.000
	100 gram	.276	3	.	.942	3	.537
Formula 3 setelah stabilitas	0 gram	.204	3	.	.993	3	.843
	50 gram	.219	3	.	.987	3	.780
	100 gram	.204	3	.	.993	3	.843

a. Lilliefors Significance Correction

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Formula 1 sebelum stabilitas - Formula 1 setelah stabilitas	-.98889	.31402	.10467	-1.23027	-.74751	-9.447	8	.000
Pair 2 Formula 2 sebelum stabilitas - Formula 2 setelah stabilitas	-1.03333	.19365	.06455	-1.18219	-.88448	-16.008	8	.000
Pair 3 Formula 3 sebelum stabilitas - Formula 3 setelah stabilitas	-1.02222	.21082	.07027	-1.18427	-.86017	-14.546	8	.000

2. pH

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
F1 sebelum stabilitas	.253	3	.	.964	3	.637
F1 sesudah stabilitas	.269	3	.	.949	3	.567
F2 sebelum stabilitas	.328	3	.	.871	3	.298
F2 sesudah stabilitas	.314	3	.	.893	3	.363
F3 sebelum stabilitas	.253	3	.	.964	3	.637
F3 sesudah stabilitas	.269	3	.	.949	3	.567

a. Lilliefors Significance Correction

Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	F1 sebelum stabilitas - F1 sesudah stabilitas	.26000	.03606	.02082	.17043	.34957	12.490	2	.006
Pair 2	F2 sebelum stabilitas - F2 sesudah stabilitas	.30667	.00577	.00333	.29232	.32101	92.000	2	.000
Pair 3	F3 sebelum stabilitas - F3 sesudah stabilitas	.82333	.04509	.02603	.71132	.93535	31.625	2	.001

3. Viskositas

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Sebelum Stabilitas	.175	3	.	1.000	3	1.000
Sesudah Stabilitas	.253	3	.	.964	3	.637
Sebelum Stabilitas	.253	3	.	.964	3	.637
Sesudah Stabilitas	.292	3	.	.923	3	.463
Sebelum Stabilitas	.175	3	.	1.000	3	1.000
Sesudah Stabilitas	.175	3	.	1.000	3	1.000

a. Lilliefors Significance Correction

Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	Sebelum Stabilitas - Sesudah Stabilitas	133.333	115.470	66.667	-153.510	420.177	2.000	2	.184
Pair 2	Sebelum Stabilitas - Sesudah Stabilitas	100.000	50.000	28.868	-24.207	224.207	3.464	2	.074
Pair 3	Sebelum Stabilitas - Sesudah Stabilitas	100.000	100.000	57.735	-148.414	348.414	1.732	2	.225