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Lampiran 1. Determinasi tanaman



Nomor : KM.04.02/2/2518/2021 04 November 2021
Lampiran : -
Hal : Keterangan Determinasi

Yth. Dekan Fakultas Farmasi Universitas Setia Budi
Jalan Letjend. Sutoyo Solo 57127

Merujuk surat Saudara nomor: 466/H6-04/6.09.2021 tanggal 6 September 2021 hal permohonan determinasi, dengan ini kami sampaikan bahwa hasil determinasi sampel tanaman sebagai berikut:

Nama Pemohon : Amisah Dia Ningsi
Nama Sampel : Murbel
Sampel : Segar
Spesies : *Morus alba* L.
Sinonim : *Morus atropurpurea* Roxb.; *Morus intermedia* Perr.
Familia : Moraceae
Penanggung Jawab : Nur Rahmawati Wijaya, S.Si.

Hasil determinasi tersebut hanya mencakup sampel tanaman yang telah dikirimkan ke B2P2TOOT.

Atas perhatian Saudara, kami sampaikan terima kasih.

Kepala Balai Besar Penelitian
dan Pengembangan Tanaman Obat
dan Obat Tradisional
Tawangmangu,



Akhmad Saikhu, S.K.M.,
M.Sc.PH.
NIP 196805251992031004

Tembusan :
-

Lampiran 2. Perhitungan bobot kering terhadap bobot basah buah murbei

Sampel	Bobot basah (g)	Bobot kering (g)	% rendemen
Buah murbei	8000	900	11,25 %

Perhitungan persentase bobot kering terhadap bobot basah :

$$\frac{900g}{8000g} \times 100\% = 11,25\%$$

Lampiran 3. Perhitungan rendemen serbuk buah murbei

Sampel	Bobot kering (g)	Bobot serbuk (g)	% rendemen
Buah murbei	900	800	88,88%

Perhitungan persentase rendemen serbuk :

$$\frac{800g}{900g} \times 100\% = 88,88\%$$

Lampiran 4. Perhitungan persentase kadar air (destilasi) serbuk buah murbei

Replikasi	Berat Serbuk (g)	Volume Air (ml)	Kadar air (%b/v)
1	10	0,3	3
2	10	0,3	3
3	10	0,4	4
Rata –rata ± SD			3,3±0,5773

Perhitungan kadar air

Replikasi 1

$$\begin{aligned}\text{Kadar air} &= \frac{\text{volume air}}{\text{berat serbuk}} \times 100\% \\ &= \frac{0,3 \text{ ml}}{10 \text{ g}} \times 100\% \\ &= 3 \%\end{aligned}$$

Replikasi 2

$$\begin{aligned}\text{Kadar air} &= \frac{\text{volume air}}{\text{berat serbuk}} \times 100\% \\ &= \frac{0,3 \text{ ml}}{10 \text{ g}} \times 100\% \\ &= 3 \%\end{aligned}$$

Replikasi 1

$$\begin{aligned}\text{Kadar air} &= \frac{\text{volume air}}{\text{berat serbuk}} \times 100\% \\ &= \frac{0,4 \text{ ml}}{10 \text{ g}} \times 100\% \\ &= 4 \%\end{aligned}$$

Lampiran 5. Perhitungan persentase rendemen ekstrak buah murbei

Sampel	Bobot serbuk (g)	Bobot ekstrak (g)	% rendemen
Buah murbei	600	210	35%

Perhitungan persentase rendemen serbuk :

$$\frac{210g}{600g} \times 100\% = 35\%$$

Lampiran 6. Perhitungan persentase kadar air ekstrak buah murbei

Replikasi	Berat crush kosong	Berat crush + ekstrak	Berat ekstrak awal	Berat crush + ekstrak (setelah di oven 5 jam)	Berat crush + ekstrak setelah di oven 1 jam)	Berat ekstrak setelah dioven	Kadar air (%)
I	13,4047	23,4945	10,0898	22,6057	22,6034	9,201	3,783
II	13,9106	23,9187	10,0081	23,0382	23,0366	9,1276	3,6812
III	13,3044	23,361	10,0566	22,4946	22,4928	9,1902	3,7087
Rata – rata ± SD							3,72± 0,0526

Perhitungan persentase kadar air ekstrak buah murbei metode gravimetri

$$\text{Kadar air} = \frac{\text{Bobot sampel sebelum dikeringkan} - \text{Bobot sampel setelah dikeringkan}}{\text{Bobot sampel sebelum dikeringkan}} \times 100\%$$

$$\text{Replikasi 1} = \frac{23,4945 - 22,6057}{23,4945} \times 100 \% = 3,7830 \%$$

$$\text{Replikasi 2} = \frac{23,9187 - 23,0382}{23,9187} \times 100 \% = 3,6812 \%$$

$$\text{Replikasi 3} = \frac{23,3610 - 22,4946}{23,3610} \times 100 \% = 3,7087\%$$

Lampiran 7. Alat penelitian

Rotary Evaporator



Ayakan Mesh no.40



Moisture Balance



Sterling – bidwell



Uji homogenitas



Uji pH



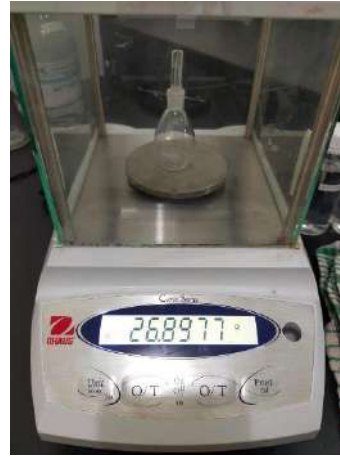
Uji Homogenitas dengan cahaya lampu



Uji Viskositas



Uji Berat Jenis



Uji Gravimetri







Laminar air flow



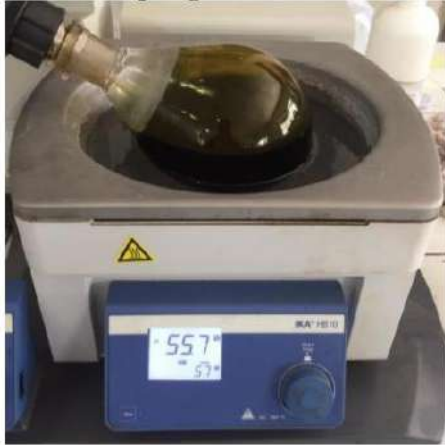
Mikroskop



Lampiran 8. Gambar proses ekstraksi

<p>Buah Segar</p> 	<p>Simplisia Kering</p> 
<p>Pembuatan serbuk</p> 	<p>Serbuk buah murbei</p> 
<p>Proses Penyaringan</p> 	<p>Proses ekstraksi</p> 







Proses pengentalan ekstrak



Ekstrak kental



Lampiran 9. Gambar pengujian kandungan senyawa kimia buah murbei

<p style="text-align: center;">Uji alkaloid</p> 	<p style="text-align: center;">Uji Flavonoid</p> 
<p style="text-align: center;">Uji saponin</p> 	<p style="text-align: center;">Uji terpenoid</p> 
<p style="text-align: center;">Uji fenol</p> 	<p style="text-align: center;">Uji Bebas Etanol</p> 

Lampiran 10. Sertifikat Bakteri *Streptococcus mutans* ATCC 25175

PRO – Technology
Laboratorium Uji Mikrobiologi
Jalan Cempaka Putih No.69 - Jakarta Pusat
Indonesia

SERTIFIKAT HASIL UJI

1. Bakteri : Stock Strain *Streptococcus mutans* ATCC 25175
2. Nomor Uji Bakteri : V. 1. 5.
3. Tanggal Uji bakteri : 7 – 11 Desember 2020

Uraian Hasil Uji

Strain V. 1. 5. Biakan Murni dari *Streptococcus mutans* ATCC 25175

I. Ciri-ciri koloni :


1. Pewarnaan Gram : Sel bulat, kecil-kecil, tersusun seperti rantai, berwarna ungu, termasuk Gram positif.
2. Di tanam pada media Muller Hinton Agar : Koloni bulat kecil, berwarna putih, dan permukaan koloni datar kering.
3. Di tanam pada media Agar Darah : Koloni warna putih keruh, disekitar koloni berwarna merah.

II. Uji Fermentasi Karbohidrat dan Biokimia Penegasan

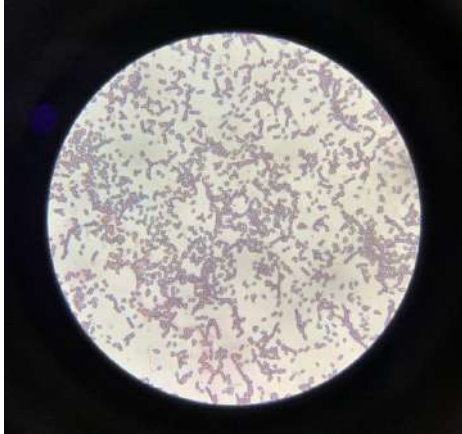





Uji Fermentasi Karbohidrat			Uji Fisiologis	
Glukosa	Asam (+)	Gas (-)	Katalase	(+) timbul gelembung gas
Laktosa	Asam (+)	Gas (-)	Koagulase (serum)	(-) serum tidak menggumpal
Maltosa	Asam (+)	Gas (-)	Oxidase	(+)
Sukrosa	Asam (+)	Gas (-)	Manitol	(+)

Catatan:

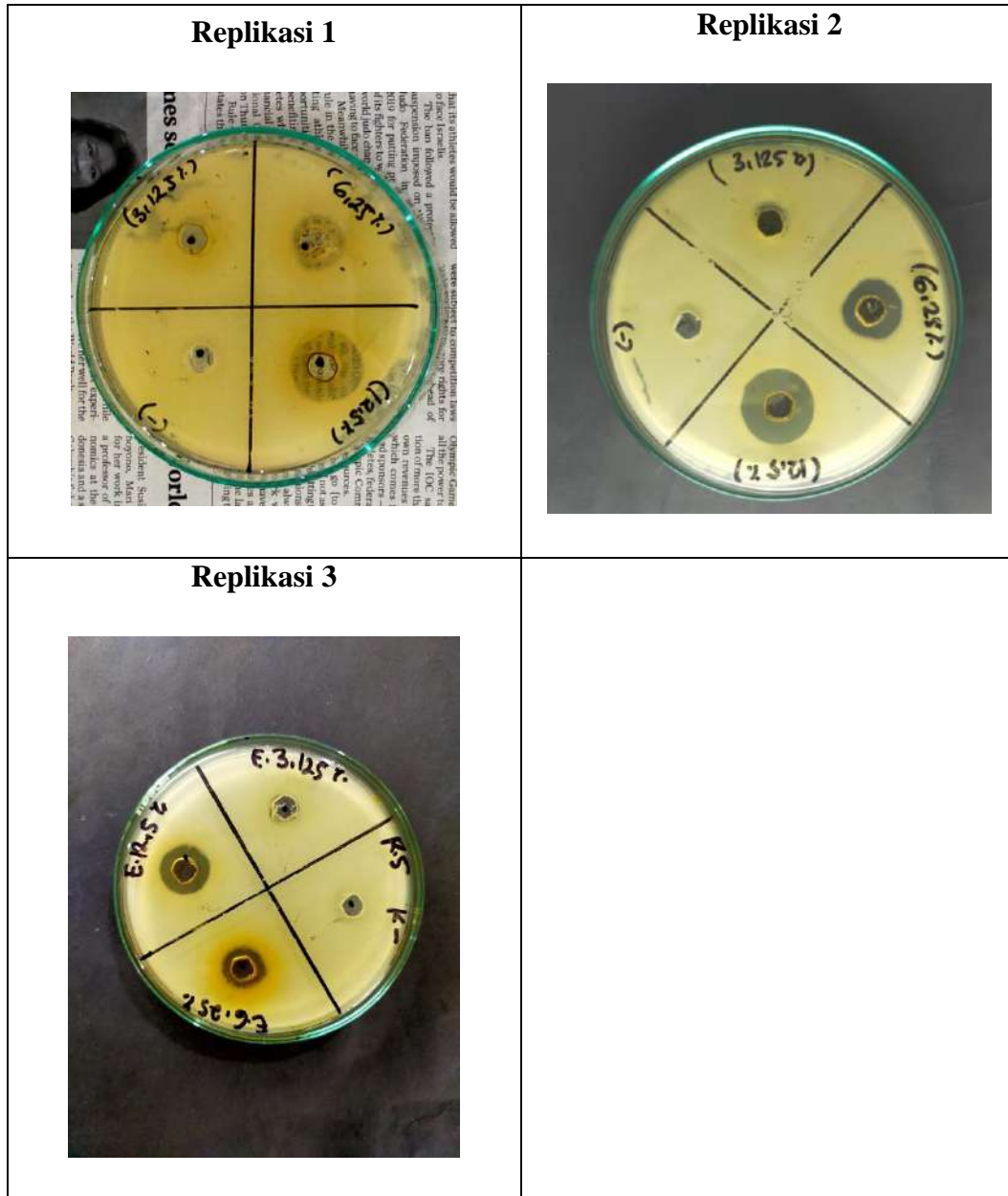
1. Hasil Uji ini hanya berlaku untuk contoh yang diuji.


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Laboratorium Uji Mikrobiologi
Jakarta - Indonesia

Lampiran 11. Identifikasi Bakteri *Streptococcus mutans* ATCC 25175

<p>Identifikasi Pewarnaan Gram</p> 	<p>Uji Katalase</p> 
<p>Uji Koagulase</p> 	<p>Uji pada media agar darah</p> 
<p>Suspensi Bakteri</p> 	<p>Sediaan obat kumur</p> 

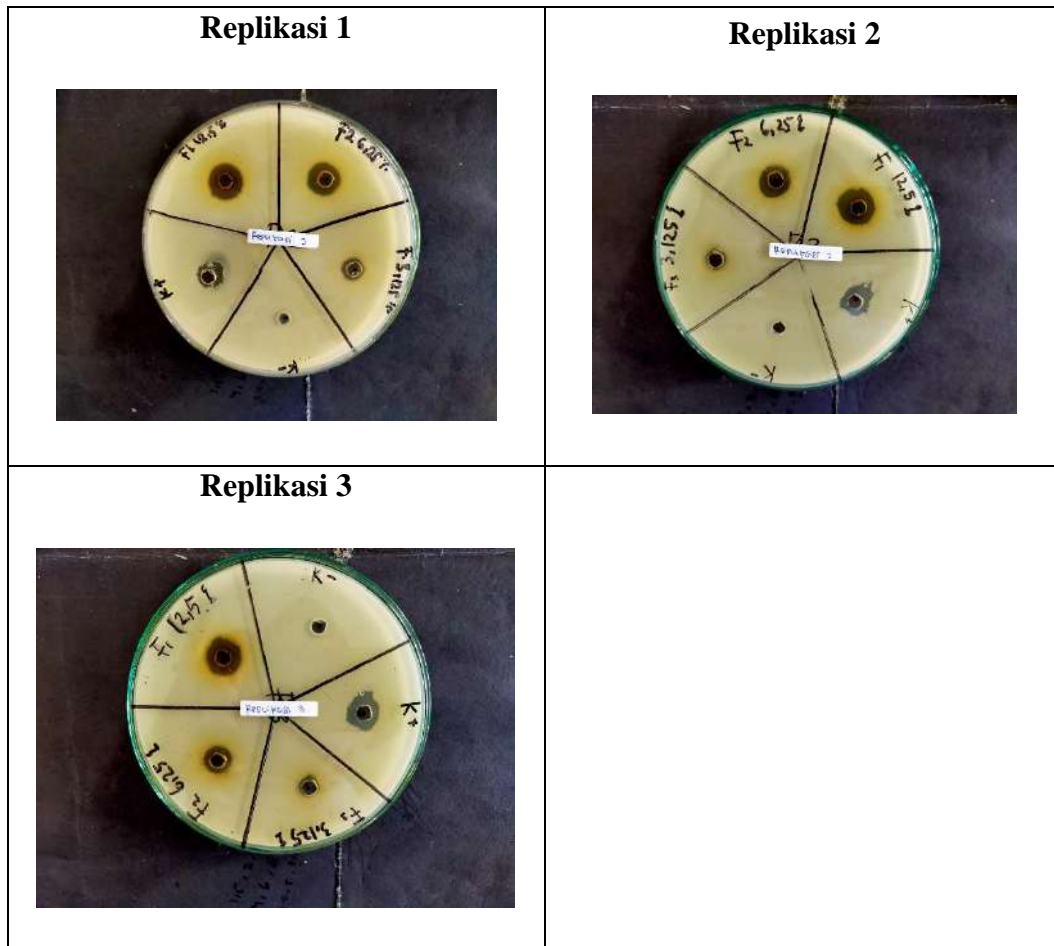
Lampiran 12. Hasil uji aktivitas antibakteri ekstrak buah murbei metode difusi sumuran



***Keterangan :**

- K - : Kontrol negatif (DMSO 5%)
- F1 : Ekstrak buah murbei konsentrasi 3,125 %
- F2 : Ekstrak buah murbei konsentrasi 6,25 %
- F3 : Ekstrak buah murbei konsentrasi 12,5 %

Lampiran 13. Hasil uji aktivitas antibakteri sediaan obat kumur ekstrak buah murbei metode difusi sumuran



***Keterangan :**

- K - : Kontrol negatif (sediaan obat kumur tanpa ekstrak)
- K+ : Kontrol positif (Listerine)
- F1 : Formula 1 sediaan obat kumur ekstrak buah murbei konsentrasi 3,125 %
- F2 : Formula 2 sediaan obat kumur ekstrak buah murbei konsentrasi 6,25 %
- F3 : Formula 3 sediaan obat kumur ekstrak buah murbei konsentrasi 12,5 %

Lampiran 14. Hasil uji pH sediaan obat kumur ekstrak buah murbei

Tests of Normality							
	pH	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Hari_KE1	K-	.219	3	.	.987	3	.780
	F1	.328	3	.	.871	3	.298
	F2	.385	3	.	.750	3	.000
	F3	.385	3	.	.750	3	.000
Hari_KE7	K-	.385	3	.	.750	3	.000
	F1	.292	3	.	.923	3	.463
	F2	.	3	.	.	3	.
	F3	.175	3	.	1.000	3	1.000
Hari_KE14	K-	.282	3	.	.936	3	.510
	F1	.196	3	.	.996	3	.878
	F2	.385	3	.	.750	3	.000
	F3	.253	3	.	.964	3	.637
Hari_KE21	K-	.253	3	.	.964	3	.637
	F1	.253	3	.	.964	3	.637
	F2	.385	3	.	.750	3	.000
	F3	.292	3	.	.923	3	.463
a. Lilliefors Significance Correction							

- *Wilcoxon test*

		Ranks		
		N	Mean Rank	Sum of Ranks
Uji_pH_Hari7 - Uji_pH_Hari1	Negative Ranks	5 ^a	8.20	41.00
	Positive Ranks	7 ^b	5.29	37.00
	Ties	0 ^c		
	Total	12		
Uji_pH_Hari14 - Uji_pH_Hari1	Negative Ranks	12 ^d	6.50	78.00
	Positive Ranks	0 ^e	.00	.00
	Ties	0 ^f		
	Total	12		
Uji_pH_Hari21 - Uji_pH_Hari1	Negative Ranks	12 ^g	6.50	78.00
	Positive Ranks	0 ^h	.00	.00
	Ties	0 ⁱ		
	Total	12		
Uji_pH_Hari14 - Uji_pH_Hari7	Negative Ranks	9 ^j	8.00	72.00
	Positive Ranks	3 ^k	2.00	6.00
	Ties	0 ^l		
	Total	12		
Uji_pH_Hari21 - Uji_pH_Hari7	Negative Ranks	9 ^m	8.00	72.00
	Positive Ranks	3 ⁿ	2.00	6.00
	Ties	0 ^o		
	Total	12		
Uji_pH_Hari21 - Uji_pH_Hari14	Negative Ranks	0 ^p	.00	.00
	Positive Ranks	11 ^q	6.00	66.00
	Ties	1 ^r		
	Total	12		

- a. Uji_pH_Hari7 < Uji_pH_Hari1
- b. Uji_pH_Hari7 > Uji_pH_Hari1
- c. Uji_pH_Hari7 = Uji_pH_Hari1
- d. Uji_pH_Hari14 < Uji_pH_Hari1
- e. Uji_pH_Hari14 > Uji_pH_Hari1
- f. Uji_pH_Hari14 = Uji_pH_Hari1
- g. Uji_pH_Hari21 < Uji_pH_Hari1
- h. Uji_pH_Hari21 > Uji_pH_Hari1
- i. Uji_pH_Hari21 = Uji_pH_Hari1
- j. Uji_pH_Hari14 < Uji_pH_Hari7
- k. Uji_pH_Hari14 > Uji_pH_Hari7
- l. Uji_pH_Hari14 = Uji_pH_Hari7
- m. Uji_pH_Hari21 < Uji_pH_Hari7
- n. Uji_pH_Hari21 > Uji_pH_Hari7
- o. Uji_pH_Hari21 = Uji_pH_Hari7
- p. Uji_pH_Hari21 < Uji_pH_Hari14
- q. Uji_pH_Hari21 > Uji_pH_Hari14
- r. Uji_pH_Hari21 = Uji_pH_Hari14

Test Statistics ^a						
	Uji_pH_Hari7 - Uji_pH_Hari1	Uji_pH_Hari14 - Uji_pH_Hari1	Uji_pH_Hari21 - Uji_pH_Hari1	Uji_pH_Hari14 - Uji_pH_Hari7	Uji_pH_Hari21 - Uji_pH_Hari7	Uji_pH_Hari21 - Uji_pH_Hari14
Z	-.158 ^b	-3.066 ^b	-3.065 ^b	-2.594 ^b	-2.593 ^b	-2.938 ^c
Asymp. Sig. (2-tailed)	.874	.002	.002	.009	.010	.003

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

Lampiran 15. Hasil uji berat jenis sediaan obat kumur ekstrak buah murbei

Tests of Normality

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	BERAT_JENIS	Statistic	df	Sig.	Statistic	df	Sig.
Hari_KE1	K-	.385	3	.	.750	3	.000
	F1	.385	3	.	.750	3	.000
	F2	.385	3	.	.750	3	.000
	F3	.385	3	.	.750	3	.000
Hari_KE7	K-	.	3	.	.	3	.
	F1	.385	3	.	.750	3	.000
	F2	.385	3	.	.750	3	.000
	F3	.	3	.	.	3	.
Hari_KE14	K-	.385	3	.	.750	3	.000
	F1	.385	3	.	.750	3	.000
	F2	.	3	.	.	3	.
	F3	.385	3	.	.750	3	.000
Hari_KE21	K-	.	3	.	.	3	.
	F1	.385	3	.	.750	3	.000
	F2	.385	3	.	.750	3	.000
	F3	.385	3	.	.750	3	.000

a. Lilliefors Significance Correction

- *Wilcoxon test*

		Ranks		
		N	Mean Rank	Sum of Ranks
Uji_BJ_Hari7 - Uji_BJ_Hari1	Negative Ranks	2 ^a	3.00	6.00
	Positive Ranks	5 ^b	4.40	22.00
	Ties	5 ^c		
	Total	12		
Uji_BJ_Hari14 - Uji_BJ_Hari1	Negative Ranks	2 ^d	3.00	6.00
	Positive Ranks	3 ^e	3.00	9.00
	Ties	7 ^f		
	Total	12		
Uji_BJ_Hari21 - Uji_BJ_Hari1	Negative Ranks	2 ^g	2.00	4.00
	Positive Ranks	3 ^h	3.67	11.00
	Ties	7 ⁱ		
	Total	12		
Uji_BJ_Hari14 - Uji_BJ_Hari7	Negative Ranks	5 ^j	3.50	17.50
	Positive Ranks	1 ^k	3.50	3.50
	Ties	6 ^l		
	Total	12		
Uji_BJ_Hari21 - Uji_BJ_Hari7	Negative Ranks	3 ^m	2.50	7.50
	Positive Ranks	1 ⁿ	2.50	2.50
	Ties	8 ^o		
	Total	12		
Uji_BJ_Hari21 - Uji_BJ_Hari14	Negative Ranks	0 ^p	.00	.00
	Positive Ranks	2 ^q	1.50	3.00
	Ties	10 ^r		
	Total	12		

- a. Uji_BJ_Hari7 < Uji_BJ_Hari1
- b. Uji_BJ_Hari7 > Uji_BJ_Hari1
- c. Uji_BJ_Hari7 = Uji_BJ_Hari1
- d. Uji_BJ_Hari14 < Uji_BJ_Hari1
- e. Uji_BJ_Hari14 > Uji_BJ_Hari1
- f. Uji_BJ_Hari14 = Uji_BJ_Hari1
- g. Uji_BJ_Hari21 < Uji_BJ_Hari1
- h. Uji_BJ_Hari21 > Uji_BJ_Hari1
- i. Uji_BJ_Hari21 = Uji_BJ_Hari1
- j. Uji_BJ_Hari14 < Uji_BJ_Hari7
- k. Uji_BJ_Hari14 > Uji_BJ_Hari7
- l. Uji_BJ_Hari14 = Uji_BJ_Hari7
- m. Uji_BJ_Hari21 < Uji_BJ_Hari7
- n. Uji_BJ_Hari21 > Uji_BJ_Hari7
- o. Uji_BJ_Hari21 = Uji_BJ_Hari7
- p. Uji_BJ_Hari21 < Uji_BJ_Hari14
- q. Uji_BJ_Hari21 > Uji_BJ_Hari14
- r. Uji_BJ_Hari21 = Uji_BJ_Hari14

Test Statistics^a

	Uji_BJ_Hari7 - Uji_BJ_Hari1	Uji_BJ_Hari14 - Uji_BJ_Hari1	Uji_BJ_Hari21 - Uji_BJ_Hari1	Uji_BJ_Hari14 - Uji_BJ_Hari7	Uji_BJ_Hari21 - Uji_BJ_Hari7	Uji_BJ_Hari21 - Uji_BJ_Hari14
Z	-1.406 ^b	-.447 ^b	-.966 ^b	-1.633 ^c	-1.000 ^c	-1.414 ^b
Asymp. Sig. (2-tailed)	.160	.655	.334	.102	.317	.157

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

c. Based on positive ranks.

Lampiran 16. Hasil uji viskositas sediaan obat kumur ekstrak buah murbei

Tests of Normality

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
VISKOSITAS		Statistic	df	Sig.	Statistic	df	Sig.
Hari_KE1	1	.281	3	.	.937	3	.516
	2	.250	3	.	.967	3	.649
	3	.292	3	.	.923	3	.463
	4	.324	3	.	.876	3	.313
Hari_KE7	1	.267	3	.	.951	3	.575
	2	.233	3	.	.979	3	.722
	3	.317	3	.	.888	3	.349
	4	.232	3	.	.980	3	.728
Hari_KE14	1	.341	3	.	.847	3	.233
	2	.278	3	.	.940	3	.527
	3	.341	3	.	.846	3	.231
	4	.289	3	.	.927	3	.477
Hari_KE21	1	.190	3	.	.997	3	.904
	2	.187	3	.	.998	3	.916
	3	.295	3	.	.920	3	.453
	4	.346	3	.	.836	3	.205

a. Lilliefors Significance Correction

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Uji_Viskositas_Hari1	1.4489	12	.43281	.12494
	Uji_Viskositas_Hari7	1.3612	12	.40527	.11699
Pair 2	Uji_Viskositas_Hari1	1.4489	12	.43281	.12494
	Uji_Viskositas_Hari14	1.3689	12	.42206	.12184
Pair 3	Uji_Viskositas_Hari1	1.4489	12	.43281	.12494
	Uji_Viskositas_Hari21	1.3528	12	.40966	.11826
Pair 4	Uji_Viskositas_Hari7	1.3612	12	.40527	.11699
	Uji_Viskositas_Hari14	1.3689	12	.42206	.12184
Pair 5	Uji_Viskositas_Hari7	1.3612	12	.40527	.11699
	Uji_Viskositas_Hari21	1.3528	12	.40966	.11826
Pair 6	Uji_Viskositas_Hari14	1.3689	12	.42206	.12184
	Uji_Viskositas_Hari21	1.3528	12	.40966	.11826

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Uji_Viskositas_Hari1 & Uji_Viskositas_Hari7	12	.992	.000
Pair 2	Uji_Viskositas_Hari1 & Uji_Viskositas_Hari14	12	.989	.000
Pair 3	Uji_Viskositas_Hari1 & Uji_Viskositas_Hari21	12	.994	.000
Pair 4	Uji_Viskositas_Hari7 & Uji_Viskositas_Hari14	12	.996	.000
Pair 5	Uji_Viskositas_Hari7 & Uji_Viskositas_Hari21	12	.995	.000
Pair 6	Uji_Viskositas_Hari14 & Uji_Viskositas_Hari21	12	.997	.000

Paired Samples Test

Paired Differences

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Uji_Viskositas_Hari1 - Uji_Viskositas_Hari7	.08773	.05848	.01688	.05058	.12489	5.197	11	.000
Pair 2	Uji_Viskositas_Hari1 - Uji_Viskositas_Hari14	.07994	.06499	.01876	.03865	.12124	4.261	11	.001
Pair 3	Uji_Viskositas_Hari1 - Uji_Viskositas_Hari21	.09607	.05055	.01459	.06396	.12819	6.584	11	.000
Pair 4	Uji_Viskositas_Hari7 - Uji_Viskositas_Hari14	-.00779	.03957	.01142	-.03293	.01735	-.682	11	.509
Pair 5	Uji_Viskositas_Hari7 - Uji_Viskositas_Hari21	.00834	.04069	.01175	-.01751	.03420	.710	11	.492
Pair 6	Uji_Viskositas_Hari14 - Uji_Viskositas_Hari21	.01613	.03477	.01004	-.00596	.03822	1.607	11	.136

Lampiran 17. Hasil uji aktivitas antibakteri sediaan obat kumur ekstrak buah murbei

Tests of Normality

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
AKTIVITAS_ANTIBAKTERI		Statistic	df	Sig.	Statistic	df	Sig.
OBAT_KUMUR	K+	.385	3	.	.750	3	.000
	F1	.175	3	.	1.000	3	1.000
	F2	.253	3	.	.964	3	.637
	F3	.175	3	.	1.000	3	1.000

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
OBAT_KUMUR	Based on Mean	.419	3	8	.744
	Based on Median	.111	3	8	.951
	Based on Median and with adjusted df	.111	3	6.000	.950
	Based on trimmed mean	.388	3	8	.765

ANOVA

OBAT_KUMUR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	125.896	3	41.965	118.490	.000
Within Groups	2.833	8	.354		
Total	128.729	11			

OBAT_KUMUR

Tukey HSD^a

AKTIVITAS_ANTIBAKTERI	N	Subset for alpha = 0.05		
		1	2	3
F1	3	10.5000		
F2	3		14.8333	
K+	3		16.3333	
F3	3			19.5000
Sig.		1.000	.059	1.000

Means for groups in homogeneous subsets are displayed.

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