

## LAMPIRAN

### Lampiran 1. Determinasi nanas



#### KEMENTERIAN KESEHATAN REPUBLIK INDONESIA

#### BADAN PENELITIAN DAN PENGEMBANGAN KESEHATAN

BALAI BESAR PENELITIAN DAN PENGEMBANGAN

TANAMAN OBAT DAN OBAT TRADISIONAL

Jalan Lawu No. 11 Tawangmangu, Karanganyar, Jawa Tengah 57792

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Laman b2p2toot.litbang.kemkes.go.id Surat Elektronik b2p2to2t@litbang.kemkes.go.id

Nomor : YK.01.03/2/1878/2020  
Hal : Keterangan Determinasi

22 September 2020

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

Merujuk surat Saudara nomor: 023/H6 – 04/13.08.2020 tanggal 13 Agustus 2020 hal permohonan determinasi, dengan ini kami sampaikan bahwa hasil determinasi sampel tanaman sebagai berikut:

Nama Pemohon : Bahana Eliza Putri  
Nama Sampel : Nanas  
Sampel : Tanaman Segar  
Spesies : *Ananas comosus* (L.) Merr.  
Sinonim : *Bromelia comosa* L.  
Familia : Bromeliaceae  
Penanggung Jawab : Anshary Maruzy, S.Si.

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

Atas perhatian Saudara, kami sampaikan terima kasih.

Kepala Balai Besar Litbang  
Tanaman Obat dan Obat Tradisional,

Ahmad Saikhu, MSc.PH.  
NIP 196805251992031004



**Lampiran 2. Perhitungan prosentase bobot kering terhadap bobot basah**

Berat Segar (g)	Berat Kering (g)	Rendemen (%)
14000	12000	85,71

$$\begin{aligned} \% \text{ rendemen bobot kering} &= \frac{12000 \text{ (g)}}{14000 \text{ (g)}} \times 100 \% \\ &= 85,71\% \end{aligned}$$

**Lampiran 3. Perhitungan prosentase berat serbuk terhadap berat kering**

Berat kering (g)	Berat serbuk (g)	Rendemen (%)
12000	9000	75

$$\begin{aligned} \% \text{ rendemen berat serbuk} &= \frac{9000 \text{ (g)}}{12000 \text{ (g)}} \times 100 \% \\ &= 75 \% \end{aligned}$$

**Lampiran 4. Perhitungan prosentase rendemen hasil ekstrak etanol**

Serbuk kulit nanas (g)	Ekstrak kental (g)	Rendemen (%)
9000	3750	41,67

$$\begin{aligned} \% \text{ rendemen ekstrak kental} &= \frac{3750 \text{ (g)}}{9000 \text{ (g)}} \times 100 \% \\ &= 41,67\% \end{aligned}$$

**Lampiran 5. Foto proses masersi dan ekstrak etanol**



**Proses Maserasi dan Penyaringan**



**Proses Pengentalan Ekstrak**



**Oven**

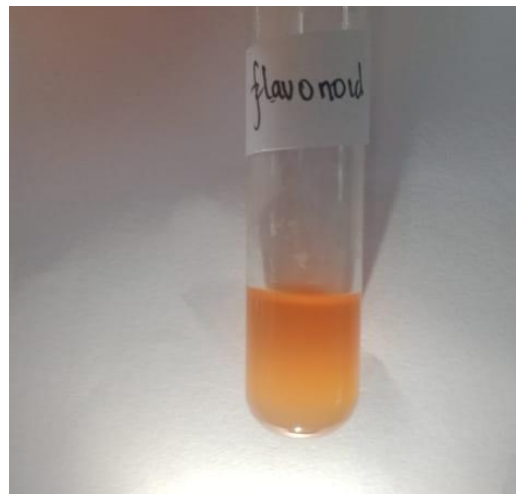


**Ekstrak Kental Kulit Nanas**

**Lampiran 6. Foto hasil uji bebas etanol dan uji kandungan kimia ekstrak kulit nanas**



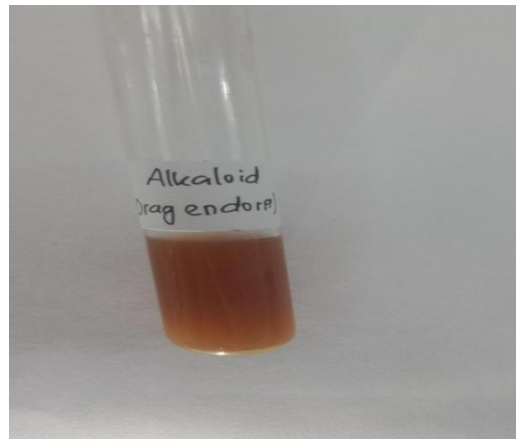
**Uji Bebas Etanol**



**Uji Flavonoid**



**Uji Alkaloid Burchardat**



**Uji Alkaloid Dragendorff**



**Uji Saponin**



**Uji tanin**

### Lampiran 7. Alat penelitian



**Destilasi**



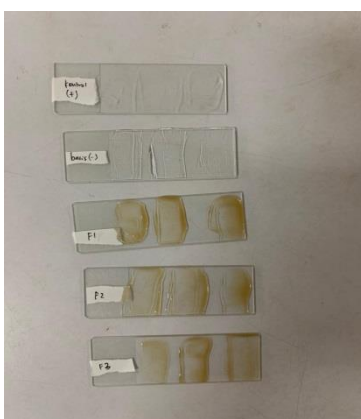
**Moisture balance**



**Desikator**



**Lemari pendingin**



**Uji homogenitas**



**Incubator**





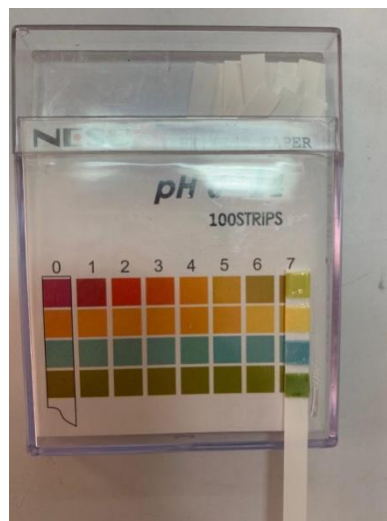
Uji Viskositas



Uji daya lekat



Uji daya sebar



Uji pH stik



## Lampiran 8. Formulir uji panelis

Tes Panelis					
Pilihlah sediaan gel <i>hand sanitizer</i> yang anda sangat suka sampai tidak suka berdasarkan kriteria tekstur, warna, dan aroma dari gel <i>hand sanitizer</i> .					
No	Nama	Umur	Formula		
			1	2	3
1	Davi N.S	22	4	4	3
2	Puspita C	22	3	4	4
3	Raden O.M	21	4	4	3
4	Rizky Maulida	21	3	4	4
5	Dewinta	21	3	3	4
6	Adinda Putri	21	3	4	4
7	Maulidha Y.A	21	3	4	4
8	Zaitun Nisa	21	3	4	4
9	Nur Indah J	22	4	3	4
10	Devi O	21	4	3	4
11	Rizky B.H.A	21	4	4	3
12	Carollus A.R	23	3	3	4
13	Yoga Putra	21	2	4	3
14	Ika Farich	20	3	4	4
15	Aldian Mubandha	22	2	3	4

Keterangan

Sangat suka : 4

Suka : 3

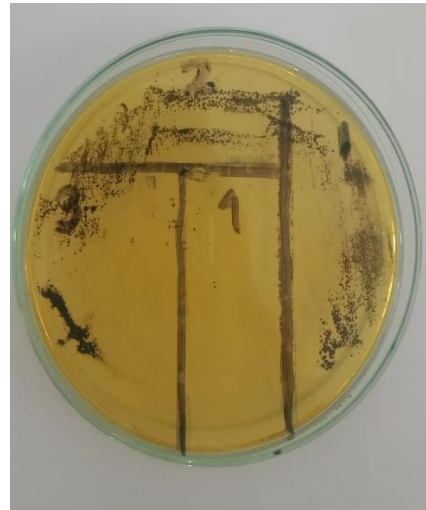
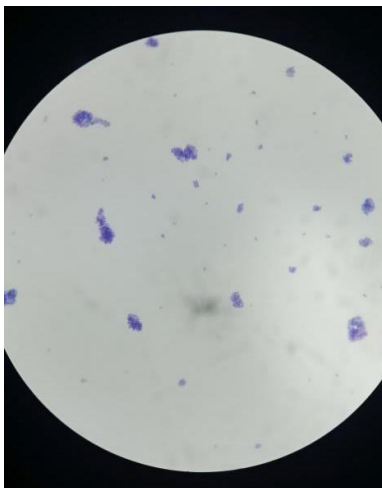
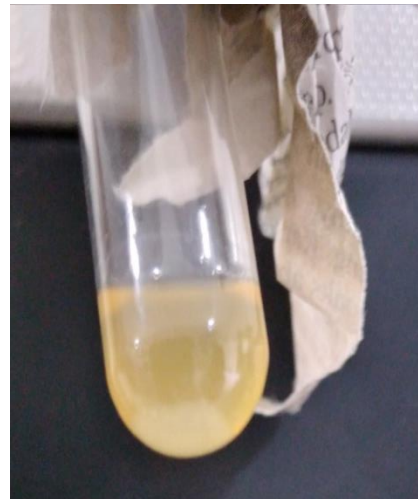
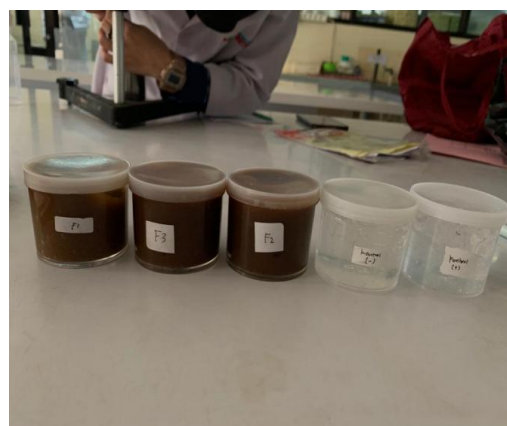
Kurang suka : 2

Tidak suka : 1

Formula 1 : sediaan gel *hand sanitizer* ekstrak kulit nanas konsentrasi 3%

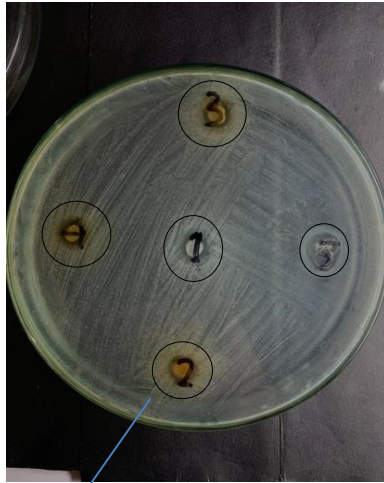
Formula 2 : sediaan gel *hand sanitizer* ekstrak kulit nanas konsentrasi 6%

Formula 3 : sediaan gel *hand sanitizer* ekstrak kulit nanas konsentrasi 9%

**Lampiran 9. Hasil identifikasi *Staphylococcus aureus*****Suspensi bakteri****Isolasi mikroorganisme****Pewarnaan Gram****Uji koagulase****Uji katalase****Sediaan gel *hand sanitizer***



**Lampiran 10. Hasil uji aktivitas antibakteri ekstrak kulit nanas metode difusi menggunakan sumuran**



**Replikasi 1**



**Replikasi 2**

Zona Irradikal



**Replikasi 3**

Keterangan :

- 1 : Sumuran 1 : Kontrol Negatif
- 2 : Sumuran 2 : Konsentrasi 3%
- 3 : Sumuran 3 : Konsentrasi 6%
- 4 : Sumuran 4 : Konsentrasi 9%
- 5 : Sumuran 5 : Kontrol Positif

Lampiran 11. Hasil uji viskositas gel *hand sanitizer* ekstrak kulit nanas

Formula	Replikasi	Viskositas (dpa's)	
		Sebelum <i>Freeze thaw</i>	Sesudah <i>Freeze thaw</i>
F1	1	115	112
	2	110	111
	3	112	112
	Rata-rata	112,33	111,67
	SD	2,52	0,58
F2	1	124	121
	2	126	122
	3	123	122
	Rata-rata	124,33	121,67
	SD	1,53	0,58
F3	1	133	133
	2	135	135
	3	129	129
	Rata-rata	132,33	132,33
	SD	3,21	3,21
Kontrol (-)	1	100	94
	2	96	94
	3	97	93
	Rata-rata	97,67	93,67
	SD	2,08	0,58

Keterangan :

Formula I : gel ekstrak kulit nanas 3%

Formula II : gel ekstrak kulit nanas 6%

Formula III : gel ekstrak kulit nanas 9%

Formula IV : gel *hand sanitizer* XFormula V : formula gel *hand sanitizer* tanpa ekstrak kulit nanas

## Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for viskositas	.217	24	.005	.945	24	.210

a. Lilliefors Significance Correction

**Between-Subjects Factors**

		Value Label	N
kelompok	1	formula 1	6
	2	formula 2	6
	3	formula 3	6
	4	kontrol (-)	6
waktu	1	sebelum	12
	2	sesudah	12

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

Dependent Variable: viskositas

F	df1	df2	Sig.
1.888	7	16	.138

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

a. Design: Intercept + kelompok + waktu + kelompok \* waktu

**Tests of Between-Subjects Effects**

Dependent Variable: viskositas

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4469.167 <sup>a</sup>	7	638.452	144.555	.000
Intercept	323408.167	1	323408.167	73224.491	.000
kelompok	4417.833	3	1472.611	333.421	.000
waktu	37.500	1	37.500	8.491	.010
kelompok * waktu	13.833	3	4.611	1.044	.400
Error	70.667	16	4.417		
Total	327948.000	24			
Corrected Total	4539.833	23			

a. R Squared = .984 (Adjusted R Squared = .978)

## Homogeneous Subsets

### Viskositas

Tukey HSD<sup>a,b</sup>

kelompok	N	Subset			
		1	2	3	4
kontrol (-)	6	95.67			
formula 1	6		113.33		
formula 2	6			123.00	
formula 3	6				132.33
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 4.417.

a. Uses Harmonic Mean Sample Size = 6.000.

b. Alpha = .05.



Lampiran 12. Hasil uji daya lekat gel *hand sanitizer* ekstrak kulit nanas

Formula	Replikasi	Daya Lekat (detik)
F1	1	3,22
	2	3,25
	3	3,30
	Rata-rata	3,26
	SD	0,04
F2	1	3,44
	2	3,43
	3	3,43
	Rata-rata	3,43
	SD	0,00
F3	1	3,53
	2	3,55
	3	3,56
	Rata-rata	3,55
	SD	0,01
Kontrol (-)	1	2,98
	2	2,86
	3	2,92
	Rata-rata	2,92
	SD	0,06

Keterangan :

Formula I : gel ekstrak kulit nanas 3%

Formula II : gel ekstrak kulit nanas 6%

Formula III : gel ekstrak kulit nanas 9%

Formula IV : gel *hand sanitizer* XFormula V : formula gel *hand sanitizer* tanpa ekstrak kulit nanas

## Tests of Normality

	kelompok	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
daya_lekat	formula 1	.232	3	.	.980	3	.726
	formula 2	.269	3	.	.949	3	.567
	formula 3	.253	3	.	.964	3	.637
	kontrol (-)	.175	3	.	1.000	3	1.000

a. Lilliefors Significance Correction

**Test of Homogeneity of Variances**

daya\_lekat

Levene Statistic	df1	df2	Sig.
2.001	3	8	.193

**ANOVA**

daya\_lekat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.674	3	.225	163.641	.000
Within Groups	.011	8	.001		
Total	.685	11			

**Homogeneous Subsets**

daya\_lekat

Tukey HSD<sup>a</sup>

kelompok	N	Subset for alpha = 0.05			
		1	2	3	4
kontrol (-)	3	2.9200			
formula 1	3		3.2567		
formula 2	3			3.4343	
formula 3	3				3.5467
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Lampiran 13. Hasil uji daya sebar gel *hand sanitizer* ekstrak kulit nanas

Formula	Beban (g)	Daya Sebar (cm)			Rata-rata	SD
		Replikasi 1	Replikasi 2	Replikasi 3		
F1	50	6,88	6,90	6,89	6,89	0,01
	100	7,23	7,20	7,26	7,23	0,03
	200	7,85	7,89	7,81	7,85	0,04
F2	50	6,06	6,12	6,12	6,10	0,03
	100	6,20	6,19	6,20	6,20	0,00
	200	6,31	6,33	6,35	6,33	0,02
F3	50	4,69	4,67	4,72	4,69	0,03
	100	4,82	4,92	4,87	4,87	0,05
	200	5,45	5,48	5,51	5,48	0,03
Kontrol (+)	50	7,71	7,75	7,79	7,75	0,04
	100	8,02	7,98	7,94	7,98	0,04
	200	8,22	8,17	8,19	8,19	0,03
Kontrol (-)	50	4,94	4,92	4,92	4,92	0,01
	100	5,32	5,32	5,34	5,33	0,01
	200	5,43	5,43	5,42	5,43	0,00

Keterangan :

Formula I : gel ekstrak kulit nanas 3%

Formula II : gel ekstrak kulit nanas 6%

Formula III : gel ekstrak kulit nanas 9%

Formula IV : gel *hand sanitizer* XFormula V : formula gel *hand sanitizer* tanpa ekstrak kulit nanas

### Tests of Normality

	kelompok	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
daya_sebar	formula 1	.243	3	.	.972	3	.681
	formula 2	.201	3	.	.994	3	.856
	formula 3	.302	3	.	.910	3	.418
	kontrol (-)	.179	3	.	.999	3	.950

a. Lilliefors Significance Correction

### Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
daya_sebar	2.064	3	8	.184
berat_beban	.000	3	8	1.000

### ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
daya_sebar	Between Groups	15.226	3	5.075	43.185	.000
	Within Groups	.940	8	.118		
	Total	16.166	11			
berat_beban	Between Groups	.000	3	.000	.000	1.000
	Within Groups	46666.667	8	5833.333		
	Total	46666.667	11			

### Homogeneous Subsets

daya\_sebar

Tukey HSD<sup>a</sup>

kelompok	N	Subset for alpha = 0.05		
		1	2	3
formula 3	3	5.0133		
formula 2	3		6.2100	
formula 1	3			7.3233
kontrol (-)	3			7.9733
Sig.		1.000	1.000	.172

Means for groups in homogeneous subsets are displayed.



**Lampiran 14. Hasil uji panelis gel hand sanitizer ekstrak kulit nanas**

Panelis	Formula		
	I	II	III
1	4	4	3
2	3	4	4
3	4	4	3
4	3	4	4
5	3	3	4
6	3	4	4
7	3	4	4
8	3	4	4
9	4	3	4
10	4	3	4
11	4	4	3
12	3	3	4
13	2	4	3
14	3	4	4
15	2	3	4
Rata-rata	3,20 ± 0,67	3,67 ± 0,49	3,73 ± 0,46

Keterangan :

Sangat suka : 4

Suka : 3

Kurang suka : 2

Tidak suka : 1

Formula I : gel ekstrak kulit nanas 3%

Formula II : gel ekstrak kulit nanas 6%

Formula III : gel ekstrak kulit nanas 9%

**Tests of Between-Subjects Effects**

Dependent Variable: hedonik

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.067 <sup>a</sup>	16	.317	.875	.601
Intercept	561.800	1	561.800	1552.34	.000
kelompok panelis	2.533	2	1.267	3.500	.044
Error	2.533	14	.181	.500	.913
Total	10.133	28	.362		
Corrected Total	577.000	45			
	15.200	44			

a. R Squared = .333 (Adjusted R Squared = -.048)

**hedonik**

Duncan<sup>a,b</sup>

kelompok	N	Subset	
		1	2
formula 1	15	3.20	
formula 2	15		3.67
formula 3	15		3.73
Sig.		1.000	.764

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error)  
= .362.

a. Uses Harmonic Mean Sample Size  
= 15.000.

b. Alpha = 0.05.

**Lampiran 15. Hasil uji daya hambat gel hand sanitizer ekstrak kulit nanas**

Formula	Replikasi 1	Replikasi 2	Replikasi 3	Rata-rata	SD
<b>Kontrol (-)</b>	8,33	7,00	7,55	7,63	0,67
<b>1</b>	19,33	19,00	19,67	19,33	0,34
<b>2</b>	21,33	21,67	21,00	21,33	0,34
<b>3</b>	27,21	25,56	26,00	26,26	0,85
<b>Kontrol (+)</b>	23,33	23,00	24,67	23,67	0,88

Keterangan :

Formula I : formula gel *hand sanitizer* tanpa ekstrak kulit nanas  
 Formula II : gel ekstrak kulit nanas 3%  
 Formula III : gel ekstrak kulit nanas 6%  
 Formula IV : gel ekstrak kulit nanas 9%  
 Formula V : gel *hand sanitizer* X

Formula	Replikasi 1	Replikasi 2	Replikasi 3	Rata-rata	SD
<b>Kontrol (-)</b>	0,00	0,00	0,00	0,00	0,00
<b>1</b>	11,00	12,00	12,12	11,71	0,61
<b>2</b>	13,00	14,67	13,45	13,71	0,86
<b>3</b>	18,88	18,56	18,45	18,63	0,22
<b>Kontrol (+)</b>	15,00	16,00	17,12	16,04	1,06

**Tests of Normality<sup>a</sup>**

	kelompok	Kolmogorov-Smirnov <sup>b</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
daya_hambat	formula 1	.350	3	.	.829	3	.187
	formula 2	.283	3	.	.934	3	.503
	formula 3	.290	3	.	.926	3	.475
	kontrol	.182	3	.	.999	3	.938
	(+)						

a. daya\_hambat is constant when kelompok = kontrol (-). It has been omitted.

b. Lilliefors Significance Correction

**Test of Homogeneity of Variances**

daya\_hambat

Levene Statistic	df1	df2	Sig.
2.700	4	10	.092

**ANOVA**

daya\_hambat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	621.828	4	155.457	338.028	.000
Within Groups	4.599	10	.460		
Total	626.427	14			

**daya\_hambat**Tukey HSD<sup>a</sup>

kelompok	N	Subset for alpha = 0.05				
		1	2	3	4	5
kontrol (-)	3	.0000				
formula 1	3		11.7067			
formula 2	3			13.7067		
kontrol (+)	3				16.0400	
formula 3	3					18.6300
Sig.		1.000	1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.