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Lampiran 1. Determinasi tumbuhan brokoli *Brassica oleracea* var. *Italica*.



KEMENTERIAN KESEHATAN REPUBLIK INDONESIA

BADAN KEBIJAKAN PEMBANGUNAN KESEHATAN

BALAI BESAR PENELITIAN DAN PENGEMBANGAN

TANAMAN OBAT DAN OBAT TRADISIONAL

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

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Nomor : KM.04.02/2/627/2022

21 Maret 2022

Hal : Keterangan Determinasi

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

Merujuk surat Saudara nomor: 269/D3-04/10.02.2022 tanggal 10 Februari 2022 hal permohonan determinasi, dengan ini kami sampaikan bahwa hasil determinasi sampel tanaman sebagai berikut:

Nama Pemohon : Gustin Wijayaning Astuti
Nama Sampel : Brokoli
Sampel : Tanaman Segar
Spesies : *Brassica oleracea* var. *italica* Plenck
Sinonim : -
Familia : Brassicaceae
Penanggung Jawab : Isna Jati Asiyah, M.Sc.

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.**

Lampiran 2. Alat, bahan, dan proses uji aktivitas antioksidan peel off mask ekstrak bunga brokoli *Brassica oleracea* var. *Italica*.

Bahan	
a. Gambar brokoli segar (<i>oleracea</i> var. <i>Italica</i> .)	b. Gambar bunga brokoli kering (<i>oleracea</i> var. <i>Italica</i> .)
	
c. Gambar serbuk kering bunga brokoli (<i>oleracea</i> var. <i>Italica</i> .)	d. Gambar ekstrak bunga brokoli (<i>oleracea</i> var. <i>Italica</i> .)
	

e. Maserasi dan penyaringan bunga brokoli (*oleracea* var. *Italica*.)



f. Evaporasi hasil maserasi bunga brokoli (*oleracea* var. *Italica*.)



g. Moisturebalance



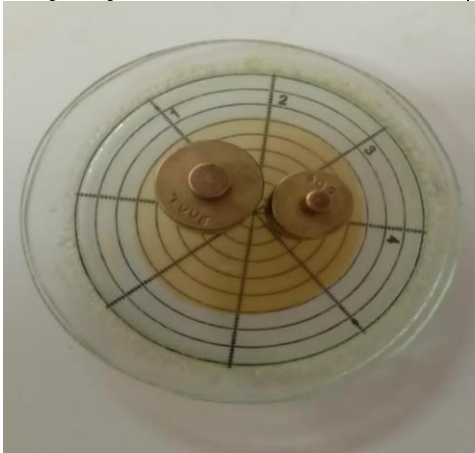
h. uji homogenitas



i. uji viskositas



k. uji daya sebar



l. uji waktu mengering



m. uji pH



n. sediaan *peel off* mask ekstrak bunga brokoli



Lampiran 3. Perhitungan Rendemen

a. Rendemen Simplisia

Bobot basah (gram)	Bobot kering (gram)	Rendemen (%b/b)
4900	563,5	11,5

Perhitungan :

$$\% \text{ rendemen simplisia} = \frac{\text{bobot kering (g)}}{\text{bobot basah (g)}} \times 100$$

$$\% \text{ rendemen simplisia} = \frac{563,5 \text{ gram}}{4900 \text{ gram}} \times 100 = 11,5\%$$

Hasil rendemen simplisia adalah 11,5%

b. Rendemen Ekstrak

Bobot serbuk (gram)	Bobot ekstrak (gram)	Rendemen (%)
435	122	28,04%

Perhitungan :

$$\% \text{ rendemen ekstrak} = \frac{\text{bobot ekstrak (g)}}{\text{bobot serbuk (g)}} \times 100$$

$$\% \text{ rendemen ekstrak} = \frac{122 \text{ gram}}{435 \text{ gram}} \times 100 = 28,04\%$$

Hasil rendemen ekstrak adalah 28,04%

Lampiran 4. Identifikasi kandungan senyawa

Pengujian	Hasil	Keterangan
Alkaloid		Terbentuk endapan berwarna merah (dregendrof)
Saponin		Terbentuk busa tidak hilang setelah 10 detik di diamkan
Tanin		Terbentuk warna coklat dan endapan

Flavonoid		Terbentuknya warna jingga
Steroid Triterpenoid		Terbentuk warna kemerahan

Lampiran 5. Hasil Statistic

Susut Pengerinan

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SusutPengerinan	3	1.5	9.5	6.000	4.0927
Valid N (listwise)	3				

Viskositas

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Viskositas	9	100	200	150.00	43.301
Valid N (listwise)	9				

One-Sample Kolmogorov-Smirnov Test

		Viskositas
N		9
Normal Parameters ^{a,b}		
	Mean	150.00
	Std. Deviation	43.301
Most Extreme Differences		
	Absolute	.209
	Positive	.209
	Negative	-.209
Test Statistic		.209
Asymp. Sig. (2-tailed)		.200 ^{c,d}

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

pH

Tests of Normality

	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
pH	1	.385	3	.	.750	3	.000
	2	.385	3	.	.750	3	.000
	3	.175	3	.	1.000	3	1.000

a. Lilliefors Significance Correction

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
pH	9	5.81	5.93	5.8667	.04770
Valid N (listwise)	9				

Test of Homogeneity of Variances

pH

Levene Statistic	df1	df2	Sig.
.364	2	6	.709

ANOVA

pH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.018	2	.009	160.800	.000
Within Groups	.000	6	.000		
Total	.018	8			

Multiple Comparisons

Dependent Variable: pH

LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-.07333*	.00609	.000	-.0882	-.0584
	3	.03333*	.00609	.002	.0184	.0482
2	1	.07333*	.00609	.000	.0584	.0882
	3	.10667*	.00609	.000	.0918	.1216
3	1	-.03333*	.00609	.002	-.0482	-.0184
	2	-.10667*	.00609	.000	-.1216	-.0918

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

Daya Sebar**Tests of Normality**

	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
DayaSebar	1	.219	3	.	.987	3	.780
	2	.385	3	.	.750	3	.000
	3	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DayaSebar	9	5.8	7.9	6.767	.7714
Valid N (listwise)	9				

Test of Homogeneity of Variances

DayaSebar

Levene Statistic	df1	df2	Sig.
.144	2	6	.869

ANOVA
DayaSebar

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.340	2	2.170	31.000	.001
Within Groups	.420	6	.070		
Total	4.760	8			

Multiple Comparisons
Dependent Variable: DayaSebar
LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	.8000*	.2160	.010	.271	1.329
	3	-.9000*	.2160	.006	-1.429	-.371
2	1	-.8000*	.2160	.010	-1.329	-.271
	3	-1.7000*	.2160	.000	-2.229	-1.171
3	1	.9000*	.2160	.006	.371	1.429
	2	1.7000*	.2160	.000	1.171	2.229

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

Waktu sediaan mengering

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
WaktuMengering	9	15.07	22.18	18.4444	2.98318
Valid N (listwise)	9				

Tests of Normality

	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
WaktuMengering	1.00	.314	3	.	.893	3	.363
	2.00	.339	3	.	.850	3	.241
	3.00	.310	3	.	.899	3	.381

a. Lilliefors Significance Correction

Test of Homogeneity of Variances
WaktuMengering

Levene Statistic	df1	df2	Sig.
5.786	2	6	.040

ANOVA
WaktuMengering

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	70.624	2	35.312	371.098	.000
Within Groups	.571	6	.095		
Total	71.195	8			

Multiple Comparisons
Dependent Variable: WaktuMengering
LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	4.23333*	.25187	.000	3.6170	4.8496
	3.00	6.79333*	.25187	.000	6.1770	7.4096
2.00	1.00	-4.23333*	.25187	.000	-4.8496	-3.6170
	3.00	2.56000*	.25187	.000	1.9437	3.1763
3.00	1.00	-6.79333*	.25187	.000	-7.4096	-6.1770
	2.00	-2.56000*	.25187	.000	-3.1763	-1.9437

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

ANOVA
WaktuMengering

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	70.624	2	35.312	371.098	.000
Within Groups	.571	6	.095		
Total	71.195	8			

Multiple Comparisons
Dependent Variable: WaktuMengering
LSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	4.23333*	.25187	.000	3.6170	4.8496
	3.00	6.79333*	.25187	.000	6.1770	7.4096
2.00	1.00	-4.23333*	.25187	.000	-4.8496	-3.6170
	3.00	2.56000*	.25187	.000	1.9437	3.1763
3.00	1.00	-6.79333*	.25187	.000	-7.4096	-6.1770
	2.00	-2.56000*	.25187	.000	-3.1763	-1.9437

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