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## Lampiran 1. Determinasi tanaman



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/ 182/ 102.20-A/ 2022  
Sifat : Biasa  
Perihal : **Determinasi Tanaman Daun Ungu**

Memenuhi permohonan saudara :

Nama : YAYUK TRI NOPIANTI  
NIM : 24185432A  
Fakultas : FARMASI, UNIVERSITAS SETIA BUDI SURAKARTA

1. Perihal determinasi tanaman daun ungu

Kingdom : Plantae (Tumbuhan)  
Divisi : Magnoliophyta (Tumbuhan berbunga)  
Kelas : Magnoliopsida (berkeping dua / dikotil)  
Ordo : Scrophulariales  
Famili : Acanthaceae  
Genus : Graptophyllum  
Spesies : *Graptophyllum pictum* (L.) Griff.  
Nama Daerah : Pudín (Simalur), daun ungu (Jawa), handeleum (Sunda), karaton (Madura), temen (Bali), kadi-kadi (Ternate), dongo-dongo (Tidore), daun batik.  
Kunci Determinasi : 1b-2b-3b-4b-12b-13b-14b-17b-18b-19b-20b-21b-22b-23b-24b-25b-26b-27a-28b-29b-30b-31b-403b-404b-405a-406b-409a-410b-411a: Acanthaceae-1b-36b-39b-40b-42a-43b-46a-47b-48a: Graptophyllum-1: *G. pictum*.

2. Morfologi : Habitus: Perdu, tinggi ± 2 m. Batang: Berkayu, beruas, permukaan licin, ungu kehijauan. Daun: Tunggal, berhadapan, bulat telur, ujung runcing, pangkal meruncing, tepi rata, pertulangan menyirip, permukaan atas mengkilat, panjang 15-25 cm, lebar 5-11 cm, ungu. Bunga: Majemuk, di ujung batang, pangkal kelopak berlekatan, bagian ujung berbagi lima, ungu, benang sari empat, melekat pada mahkota bunga, tangkai sari ungu, kepala sari ungu kehitaman, putik bentuk tabung, ujung bertaju lima, ungu. Buah: Kotak, lonjong, ungu kecoklatan. Biji: Bulat, putih. Akar: Tunggang, coklat muda.

3. Bagian yang digunakan : Daun.

4. Penggunaan : Penelitian (Skripsi).

5. Daftar Pustaka

- Backer, C.A. & Bakhuizen Van Den Brink, R.C. 1963. *Flora of Java (Spermatophytes Only)*, Vol I. N.V.P. Noordhoff, Groningen.
- Backer, C.A. & Bakhuizen Van Den Brink, R.C. 1965. *Flora of Java (Spermatophytes Only)*, Vol. II. N.V.P. Noordhoff, Groningen.

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

Batu, 04 Maret 2022  
KEPALA UPT LABORATORIUM HERBAL  
MATERIA MEDICA BATU  
ACHMAD MABRÜR, SKM, M.Kes.  
PEMBINA  
NIP. 19680203 199203 1 004

**Lampiran 2. Susut pengeringan serbuk daun wungu**

**Replikasi 1**



**Replikasi 2**



**Replikasi 3**



**Lampiran 3. Kadar air serbuk daun wungu**

<b>Berat serbuk (g)</b>	<b>Volume Air (ml)</b>	<b>Kadar Air (% v/b)</b>
20		$\text{Kadar air} = \frac{1,1 \text{ ml}}{20 \text{ g}} \times 100\%$ $= 5,5\%$
20		$\text{Kadar air} = \frac{1,1 \text{ ml}}{20 \text{ g}} \times 100\%$ $= 5,5\%$
20		$\text{Kadar air} = \frac{1,2 \text{ ml}}{20 \text{ g}} \times 100\%$ $= 6\%$

## Lampiran 4. Rendemen ekstrak daun wungu

### a. Penimbangan



### b. Perhitungan rendemen

Berat serbuk = 924 g  
 Berat ekstrak + wadah = 323 g  
 Berat wadah = 144 g

$$\begin{aligned} \% \text{ Rendemen ekstrak} &= \frac{\text{Berat ekstrak}}{\text{Berat serbuk}} \times 100\% \\ \% \text{ Rendemen ekstrak} &= \frac{\text{Berat ekstrak}}{\text{Berat serbuk}} \times 100\% \\ &= \frac{(323 \text{ g} - 144 \text{ g})}{924 \text{ g}} \times 100\% \\ &= 19,37\% \end{aligned}$$

**Lampiran 5. Susut kering ekstrak daun wungu**

**Replikasi 1**







**Replikasi 2**





**Replikasi 3**



**Lampiran 6. Identifikasi kandungan senyawan ekstrak daun wungu**

Senyawa	Hasil	Pustaka	Keterangan
Flavonoid		Hasil positif jika terbentuk warna merah tua (Sagi <i>et al.</i> , 2008)	+
Alkaloid	<p>Dragendrof</p> 	Hasil positif jika terbentuk endapan warna jingga (Ergina <i>et al.</i> , 2008)	+
	<p>Mayer</p> 	Hasil positif jika terbentuk endapan warna putih (Ergina <i>et al.</i> , 2008)	+
Tanin		Hasil positif bila warna hijau kehitaman (Sagi <i>et al.</i> , 2008)	+

Senyawa	Hasil	Pustaka	Keterangan
Saponin		Mengandung saponin bila terbentuk busa stabil selama 30 menit (Wijaya, 2013)	+
Antosianin		Warna hijau kebiruan yang kemudian memudar (Harbone, 1996)	+



### Lampiran 7. Identifikasi Jenis Antosianin Menggunakan Kromatografi Lapis Tipis



**Perhitungan :**

$$R_f = \frac{\text{Jarak yang ditempuh noda}}{\text{jarak yang ditempuh fase gerak}}$$

$$R_f \text{ bercak 1} = \frac{3,2 \text{ cm}}{5 \text{ cm}} = 0,64 \times 100 = 64$$

$$R_f \text{ bercak 2} = \frac{4,1 \text{ cm}}{5 \text{ cm}} = 0,82 \times 100 = 82$$

### Lampiran 8. Uji organoleptis *lip balm* ekstrak daun wungu



**Lampiran 9. Uji homogenitas**

F0



F1



F2



F3



**Lampiran 10. Uji suhu lebur *lip balm* ekstrak daun wungu**

Formula	Uji suhu lebur (°C)			
	Replikasi 1	Replikasi 2	Replikasi 3	Rata-rata ± SD
F0	54	54	54	54 ± 0
F1	53	53	53	53 ± 0
F2	52	52	52	52 ± 0
F3	50	50	50	50 ± 0

**Lampiran 11. Uji pH *lip balm* ekstrak daun wungu**

Formula	Uji pH			
	Replikasi 1	Replikasi 2	Replikasi 3	Rata-rata ± SD
F0	6,34	6,40	6,43	6,34 ± 0,03741
F1	5,97	5,96	5,98	5,98 ± 0,0082
F2	5,70	5,73	5,71	5,72 ± 0,0125
F3	5,53	5,54	5,50	5,52 ± 0,0170

**Lampiran 12. Uji daya lekat *lip balm* ekstrak daun wungu**

Formula	Uji daya lekat			
	Replikasi 1	Replikasi 2	Replikasi 3	Rata-rata ± SD
F0	10,13	10,15	10,11	10,13 ± 0,0163
F1	8,51	8,48	8,53	8,51 ± 0,0205
F2	6,33	6,31	6,35	6,33 ± 0,0163
F3	5,26	5,29	5,27	5,27 ± 0,0125

### Lampiran 13. Hasil SPSS uji mutu fisik pH

#### Tests of Normality

Uji_pH	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Uji_pH_Lip_Balm F0_Basis	.253	3	.	.964	3	.637
F1_Ekstrak 3%	.175	3	.	1.000	3	1.000
F2_Ekstrak 7%	.253	3	.	.964	3	.637
F3_Ekstrak 17%	.292	3	.	.923	3	.463

a. Lilliefors Significance Correction

#### Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Uji_pH_Lip_Balm F0_Basis	3	6.3900	.04583	.02646	6.2782	6.5038	6.34	6.43
F1_Ekstrak 3%	3	5.9700	.01000	.00577	5.9452	5.9948	5.96	5.98
F2_Ekstrak 7%	3	5.7133	.01528	.00882	5.6754	5.7513	5.70	5.73
F3_Ekstrak 17%	3	5.5233	.02082	.01202	5.4716	5.5750	5.50	5.54
Total	12	5.8992	.33991	.09812	5.6832	6.1151	5.50	6.43

#### Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Uji_pH_Lip_Balm	2.882	3	8	.108

#### ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Uji_pH_Lip_Balm	Between Groups	1.265	3	.422	589.446	.000
	Within Groups	.006	8	.001		
	Total	1.271	11			

### Lampiran14. Hasil SPSS uji mutu fisik daya lekat

#### Tests of Normality

Uji_pH	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Uji_pH_Lip_Balm F0_Basis	.253	3	.	.964	3	.637
F1_Ekstrak 3%	.175	3	.	1.000	3	1.000
F2_Ekstrak 7%	.253	3	.	.964	3	.637
F3_Ekstrak 17%	.292	3	.	.923	3	.463

a. Lilliefors Significance Correction

#### Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Uji_pH_Lip_Balm F0_Basis	3	6.3900	.04583	.02646	6.2762	6.5038	6.34	6.43
F1_Ekstrak 3%	3	5.9700	.01000	.00577	5.9452	5.9948	5.96	5.98
F2_Ekstrak 7%	3	5.7133	.01528	.00882	5.6754	5.7513	5.70	5.73
F3_Ekstrak 17%	3	5.5233	.02082	.01202	5.4716	5.5750	5.50	5.54
Total	12	5.8992	.33991	.09812	5.6832	6.1151	5.50	6.43

#### Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Uji_pH_Lip_Balm	2.802	3	8	.108

#### ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Uji_pH_Lip_Balm	Between Groups	1.205	3	.422	588.446	.000
	Within Groups	.006	8	.001		
	Total	1.271	11			

**Lampiran 15. Uji daya oles**

<b>Uji daya oles</b>			
<b>Formula 0</b>	<b>Formula 1</b>	<b>Formula 2</b>	<b>Formula 3</b>
			
Tidak berwarna	Warna kuning tipis	Warna coklat	Warna coklat gelap

## Lampiran 16. Uji stabilitas pH

### a. Setelah cycling test

Formula	Replikasi 1	Replikasi 2	Replikasi 3	Rata-rata ± SD
F0	6,32	6,35	6,39	6,35 ± 0,0287
F1	5,97	5,94	5,95	5,95 ± 0,0125
F2	5,68	5,66	5,65	5,66 ± 0,0125
F3	5,46	5,5	5,48	5,48 ± 0,0163

### b. Hasil SPSS uji stabilitas pH

#### Tests of Normality<sup>b,c,d,e,f,g,h,i,j</sup>

Uji_pH	Kolmogorov-Smirnov <sup>a</sup>	Shapiro-Wilk		
		Statistic	df	Sig.
Uji_pH_Lip_Balm F1_Ekstrak 3%	.253	3	.964	.637
F0_sebelum F1_Ekstrak 3%	.253	3	.964	.637
F0_sesudah F1_Ekstrak 3%	.204	3	.993	.843
F1_sebelum F1_Ekstrak 3%	.175	3	1.000	1.000
F1_sesudah F1_Ekstrak 3%	.253	3	.964	.637
F2_sebelum F1_Ekstrak 3%	.253	3	.964	.637
F2_sesudah F1_Ekstrak 3%	.253	3	.964	.637
F3_sebelum F1_Ekstrak 3%	.292	3	.923	.463
F3_sesudah F1_Ekstrak 3%	.175	3	1.000	1.000

#### Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Uji_pH_Lip_Balm F1_Ekstrak 3%	3	6.3600	.04683	.02648	6.2762	6.5038	6.34	6.43
F2_Ekstrak 3%	3	6.3633	.03612	.02028	6.2661	6.4406	6.32	6.39
F3_Ekstrak 17%	3	6.3790	.01800	.00777	6.3462	6.4048	6.36	6.38
4	3	6.3633	.01528	.00882	6.3154	6.4048	6.34	6.37
5	3	6.7133	.01528	.00882	6.6754	6.7513	6.70	6.73
6	3	6.6033	.01528	.00882	6.5204	6.7013	6.66	6.68
7	3	6.5233	.02082	.01202	6.4716	6.5750	6.50	6.54
8	3	6.4800	.02000	.01155	6.4303	6.5297	6.46	6.50
Total	24	6.6000	.33648	.06848	6.7392	6.0226	6.46	6.43

#### Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Uji_pH_Lip_Balm	1.600	7	16	.208

#### ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Uji_pH_Lip_Balm	Between Groups	2.579	7	.368	593.361	.000
	Within Groups	.010	16	.001		
	Total	2.589	23			

#### Paired Samples Test

Pair		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	F0_sebelum-F0_sesudah	.03667	.01528	.00882	-.00128	.07461	4.158	2	.053
Pair 2	F1_sebelum-F1_sesudah	.01667	.01528	.00882	-.02128	.05461	1.890	2	.199
Pair 3	F2_sebelum-F2_sesudah	.05000	.02646	.01528	-.01572	.11572	3.273	2	.082
Pair 4	F3_sebelum-F3_sesudah	.04333	.02517	.01453	-.01918	.10585	2.982	2	.086

**Lampiran17. Uji stabilitas daya lekat**a. Setelah *cycling test*

<b>Formula</b>	<b>Replikasi 1</b>	<b>Replikasi 2</b>	<b>Replikasi 3</b>	<b>Rata-rata ± SD</b>
F0	10,2	10,25	10,15	10,20 ± 0,0408
F1	8,55	8,5	8,58	8,54 ± 0,0330
F2	6,38	6,39	6,37	6,38 ± 0,0082
F3	5,29	5,3	5,31	5,30 ± 0,0082



## b. Hasil SPSS uji stabilitas daya lekat

Tests of Normality<sup>b,c,d,e,f,g,h,i,j</sup>

Uji_Daya_Lekat		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Uji_Daya_Lekat_Lip_Bal m	F1_Ekstrak 3%	.175	3	.	1.000	3	1.000
F0_sebelum	F1_Ekstrak 3%	.175	3	.	1.000	3	1.000
F0_sesudah	F1_Ekstrak 3%	.175	3	.	1.000	3	1.000
F1_sebelum	F1_Ekstrak 3%	.219	3	.	.987	3	.780
F1_sesudah	F1_Ekstrak 3%	.232	3	.	.980	3	.726
F2_sebelum	F1_Ekstrak 3%	.175	3	.	1.000	3	1.000
F2_sesudah	F1_Ekstrak 3%	.175	3	.	1.000	3	1.000
F3_sebelum	F1_Ekstrak 3%	.253	3	.	.964	3	.637
F3_sesudah	F1_Ekstrak 3%	.175	3	.	1.000	3	1.000

## Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Uji_Daya_Lekat_Lip_Bal m	F1_Ekstrak 3%	3	10.1300	.02000	.01155	10.0903	10.1797	10.11	10.15
	F2_Ekstrak 7%	3	10.2000	.05000	.02887	10.0758	10.3242	10.15	10.25
	F3_Ekstrak 17%	3	8.5067	.02517	.01453	8.4442	8.5692	8.48	8.53
	4	3	8.5433	.04041	.02333	8.4429	8.6437	8.50	8.58
	5	3	6.3300	.02000	.01155	6.2903	6.3797	6.31	6.35
	6	3	6.3800	.01000	.00577	6.3553	6.4048	6.37	6.39
	7	3	5.2733	.01528	.00882	5.2354	5.3113	5.26	5.29
	8	3	5.3000	.01000	.00577	5.2752	5.3248	5.29	5.31
	Total	24	7.5829	1.93410	.39480	6.7662	8.3996	5.26	10.25

## Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Uji_Daya_Lekat_Lip_Bal m	1.330	7	16	.299

## ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Uji_Daya_Lekat_Lip_Bal m	Between Groups	98.625	7	12.289	16395.909	.006
	Within Groups	.912	16	.057		
	Total	99.537	23			

## 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	F0_sebelum - F0_sesudah	-.07000	.03000	.01732	-.14452	.00452	-4.041	2	.056
Pair 2	F1_sebelum - F1_sesudah	-.03667	.01528	.00882	-.07461	.00128	-4.158	2	.053
Pair 3	F2_sebelum - F2_sesudah	-.05000	.03000	.01732	-.12452	.02452	-2.887	2	.102
Pair 4	F3_sebelum - F3_sesudah	-.02667	.01528	.00882	-.06461	.01128	-3.024	2	.084

**Lampiran 18. Penimbangan DPPH 0,4 mM**

$$0,4 \text{ mM} = \frac{X}{394,32} \times \frac{1000}{100 \text{ ml}}$$

$$0,4 \text{ mM} = \frac{X}{394,32} \times 10$$

$$\frac{0,4}{10} = \frac{X}{394,32}$$

$$0,04 = \frac{X}{394,32}$$

$$X = 394,32 \times 0,04$$

$$X = 15,8 \text{ mg}$$

### Lampiran 19. Penimbangan untuk larutan stok

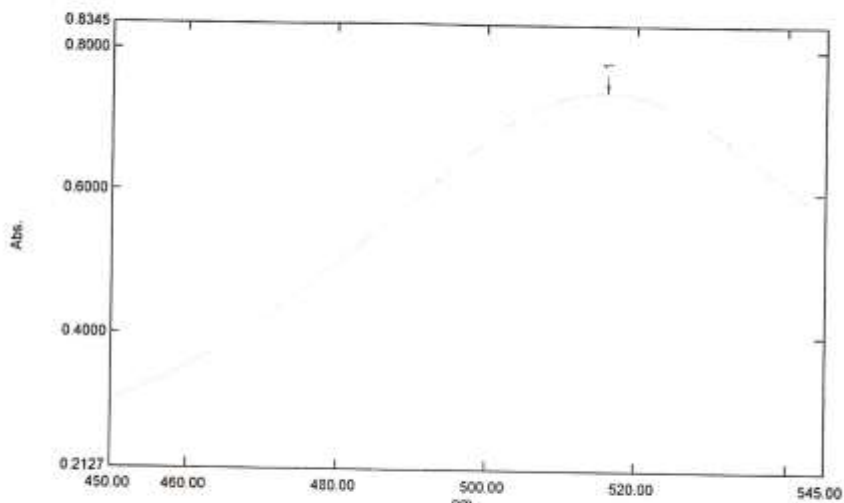
Penimbangan	Perhitungan
Ekstrak daun wungu	$\frac{x \text{ mg}}{100 \text{ ml}} = \frac{100 \text{ mg}}{1000 \text{ ml}}$ $X \ 1000 = 10.000$ $X = \frac{10.000}{1000}$ $X = 10 \text{ mg}$
Kuersetin	$\frac{x \text{ mg}}{100 \text{ ml}} = \frac{100 \text{ mg}}{1000 \text{ ml}}$ $X \ 1000 = 10.000$ $X = \frac{10.000}{1000}$ $X = 10 \text{ mg}$
Formula 1	$= \frac{\text{Berat ekstrak x berat sediaan}}{\text{Berat ekstrak dalam sediaan}}$ $= \frac{10 \text{ mg x } 100.000 \text{ mg}}{3000 \text{ mg}}$ $= 333,333 \text{ mg}$
Formula 2	$= \frac{\text{Berat ekstrak x berat sediaan}}{\text{Berat ekstrak dalam sediaan}}$ $= \frac{10 \text{ mg x } 100.000 \text{ mg}}{10.000 \text{ mg}}$ $= 100 \text{ mg}$
Formula 3	$= \frac{\text{Berat ekstrak x berat sediaan}}{\text{Berat ekstrak dalam sediaan}}$ $= \frac{10 \text{ mg x } 100.000 \text{ mg}}{17.000 \text{ mg}}$ $= 58,824 \text{ mg}$
<i>Lip balm</i> pasaran	$\frac{x \text{ mg}}{100 \text{ ml}} = \frac{100 \text{ mg}}{1000 \text{ ml}}$ $X \ 1000 = 10.000$ $X = \frac{10.000}{1000}$ $X = 10 \text{ mg}$

## Lampiran 20. Gelombang maksimum

## Spectrum Peak Pick Report

08/03/2022 12:38:39 PM

Data Set: File\_220603\_123733 - RawData



[Measurement Properties]  
 Wavelength Range (nm): 450.00 to 545.00  
 Scan Speed: Fast  
 Sampling Interval: 1.0  
 Auto Sampling Interval: Disabled  
 Scan Mode: Single

No.	P/V	Wavelength	Abs.	Description
1	Ⓢ	516.00	0.7410	

[Instrument Properties]  
 Instrument Type: UV-1800 Series  
 Measuring Mode: Absorbance  
 Slit Width: 1.0 nm  
 Light Source Change Wavelength: 340.0 nm  
 S/R Exchange: Normal

[Attachment Properties]  
 Attachment: None

[Operation]  
 Threshold: 0.0010000  
 Points: 4  
 InterPolate: Disabled  
 Average: Disabled

[Sample Preparation Properties]  
 Weight:  
 Volume:  
 Dilution:  
 Path Length:  
 Additional Information:

**Lampiran 21. Operating time**

a. kuersetin

**Kinetics Data Print Report**

06/06/2022 01:26:28 PM

Time ( Minute )	RawData --
0.000	0.504
1.000	0.504
2.000	0.502
3.000	0.501
4.000	0.500
5.000	0.499
6.000	0.499
7.000	0.498
8.000	0.497
9.000	0.497
10.000	0.496
11.000	0.496
12.000	0.495
13.000	0.495
14.000	0.495
15.000	0.495
16.000	0.495
17.000	0.495
18.000	0.495
19.000	0.495
20.000	0.495
21.000	0.495
22.000	0.495
23.000	0.496
24.000	0.496
25.000	0.496
26.000	0.496
27.000	0.496
28.000	0.495
29.000	0.497
30.000	0.497
31.000	0.498
32.000	0.498
33.000	0.498
34.000	0.498
35.000	0.498
36.000	0.499
37.000	0.499
38.000	0.499
39.000	0.500
40.000	0.500
41.000	0.500
42.000	0.500
43.000	0.501
44.000	0.501
45.000	0.501
46.000	0.502
47.000	0.502
48.000	0.502
49.000	0.503
50.000	0.504

# Kinetics Data Print Report

06/06/2022 01:26:28 PM

Time ( Minute )	RawData ...
51.000	0.504
52.000	0.504
53.000	0.505
54.000	0.505
55.000	0.505
56.000	0.506
57.000	0.506
58.000	0.506
59.000	0.506
60.000	0.507

67

b. Ekstrak

/

## Kinetics Data Print Report

06/07/2022 01:34:16 PM

Time ( Minute )	RawData ...
0.000	0.457
1.000	0.455
2.000	0.454
3.000	0.453
4.000	0.453
5.000	0.453
6.000	0.453
7.000	0.452
8.000	0.453
9.000	0.452
10.000	0.452
11.000	0.452
12.000	0.452
13.000	0.452
14.000	0.452
15.000	0.452
16.000	0.452
17.000	0.452
18.000	0.452
19.000	0.452
20.000	0.452
21.000	0.452
22.000	0.452
23.000	0.452
24.000	0.452
25.000	0.452
26.000	0.452
27.000	0.452
28.000	0.453
29.000	0.453
30.000	0.453
31.000	0.453
32.000	0.453
33.000	0.453
34.000	0.453
35.000	0.453
36.000	0.454
37.000	0.454
38.000	0.455
39.000	0.454
40.000	0.455
41.000	0.455
42.000	0.455
43.000	0.455
44.000	0.456
45.000	0.456
46.000	0.456
47.000	0.456
48.000	0.457
49.000	0.457
50.000	0.457

## Kinetics Data Print Report

06/07/2022 01:34:16 PM

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Time ( Minute )	RawData ...
51.000	0.458
52.000	0.458
53.000	0.450
54.000	0.458
55.000	0.459
56.000	0.459
57.000	0.459
58.000	0.480
59.000	0.481
60.000	0.460



69

c. Basis

## Kinetics Data Print Report

06/14/2022 10:18:17 AM

Time ( Minute )	RawData ...
0.000	0.572
1.000	0.571
2.000	0.571
3.000	0.571
4.000	0.571
5.000	0.571
6.000	0.571
7.000	0.571
8.000	0.571
9.000	0.571
10.000	0.571
11.000	0.572
12.000	0.571
13.000	0.571
14.000	0.571
15.000	0.571
16.000	0.571
17.000	0.571
18.000	0.571
19.000	0.571
20.000	0.571
21.000	0.571
22.000	0.571
23.000	0.570
24.000	0.571
25.000	0.571
26.000	0.571
27.000	0.571
28.000	0.571
29.000	0.571
30.000	0.571
31.000	0.571
32.000	0.571
33.000	0.572
34.000	0.572
35.000	0.571
36.000	0.572
37.000	0.572
38.000	0.573
39.000	0.573
40.000	0.574
41.000	0.574
42.000	0.574
43.000	0.575
44.000	0.575
45.000	0.575
46.000	0.576
47.000	0.576
48.000	0.576
49.000	0.577
50.000	0.577

# Kinetics Data Print Report

06/14/2022 10:18:17 AM

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Time ( Minute )	RawData ...
51.000	0.578
52.000	0.578
53.000	0.578
54.000	0.579
55.000	0.580
56.000	0.579
57.000	0.580
58.000	0.580
59.000	0.581
60.000	0.581

71

d. Formula 1

## Kinetics Data Print Report

06/21/2022 12:35:03 PM

Time ( Minute )	RawData ...
0.000	0.580
1.000	0.580
2.000	0.580
3.000	0.578
4.000	0.578
5.000	0.578
6.000	0.578
7.000	0.577
8.000	0.578
9.000	0.578
10.000	0.578
11.000	0.577
12.000	0.578
13.000	0.578
14.000	0.578
15.000	0.578
16.000	0.578
17.000	0.578
18.000	0.578
19.000	0.578
20.000	0.578
21.000	0.578
22.000	0.578
23.000	0.579
24.000	0.579
25.000	0.579
26.000	0.579
27.000	0.578
28.000	0.579
29.000	0.579
30.000	0.580
31.000	0.580
32.000	0.580
33.000	0.580
34.000	0.580
35.000	0.580
36.000	0.580
37.000	0.580
38.000	0.581
39.000	0.581
40.000	0.581
41.000	0.581
42.000	0.582
43.000	0.582
44.000	0.582
45.000	0.582
46.000	0.582
47.000	0.582
48.000	0.582
49.000	0.582
50.000	0.582

## Kinetics Data Print Report

06/21/2022 12:35:03 PM

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Time ( Minute )	RawData ...
51.000	0.583
52.000	0.583
53.000	0.583
54.000	0.583
55.000	0.583
56.000	0.583
57.000	0.584
58.000	0.584
59.000	0.584
60.000	0.584

73

e. Formula 2

## Kinetics Data Print Report

06/22/2022 01:21:24 PM

Time ( Minute )	RawData ...
0.000	0.672
1.000	0.671
2.000	0.671
3.000	0.671
4.000	0.671
5.000	0.671
6.000	0.671
7.000	0.670
8.000	0.671
9.000	0.670
10.000	0.670
11.000	0.670
12.000	0.669
13.000	0.669
14.000	0.669
15.000	0.669
16.000	0.669
17.000	0.669
18.000	0.668
19.000	0.669
20.000	0.669
21.000	0.668
22.000	0.668
23.000	0.668
24.000	0.668
25.000	0.668
26.000	0.668
27.000	0.668
28.000	0.668
29.000	0.669
30.000	0.668
31.000	0.668
32.000	0.668
33.000	0.668
34.000	0.668
35.000	0.668
36.000	0.669
37.000	0.668
38.000	0.668
39.000	0.668
40.000	0.668
41.000	0.668
42.000	0.668
43.000	0.668
44.000	0.668
45.000	0.668
46.000	0.668
47.000	0.668
48.000	0.668
49.000	0.668
50.000	0.668

**Kinetics Data Print Report**

06/22/2022 01:21:25 PM

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Time ( Minute )	RawData ...
51.000	0.668
52.000	0.668
53.000	0.668
54.000	0.668
55.000	0.668
56.000	0.668
57.000	0.668
58.000	0.668
59.000	0.668
60.000	0.668

75

f. Formula 3

## Kinetics Data Print Report

06/23/2022 03:50:48 PM

Time ( Minute )	RawData ...
0.000	0.620
1.000	0.624
2.000	0.623
3.000	0.621
4.000	0.620
5.000	0.620
6.000	0.619
7.000	0.619
8.000	0.619
9.000	0.619
10.000	0.619
11.000	0.619
12.000	0.619
13.000	0.618
14.000	0.619
15.000	0.618
16.000	0.618
17.000	0.618
18.000	0.618
19.000	0.618
20.000	0.618
21.000	0.618
22.000	0.618
23.000	0.618
24.000	0.618
25.000	0.618
26.000	0.618
27.000	0.618
28.000	0.618
29.000	0.618
30.000	0.618
31.000	0.618
32.000	0.618
33.000	0.618
34.000	0.618
35.000	0.618
36.000	0.618
37.000	0.619
38.000	0.618
39.000	0.618
40.000	0.618
41.000	0.618
42.000	0.618
43.000	0.619
44.000	0.618
45.000	0.618
46.000	0.618
47.000	0.618
48.000	0.618
49.000	0.618
50.000	0.618

**Kinetics Data Print Report**

06/23/2022 03:50:48 PM

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Time ( Minute )	RawData ...
51.000	0.618
52.000	0.618
53.000	0.618
54.000	0.618
55.000	0.618
56.000	0.618
57.000	0.618
58.000	0.618
59.000	0.618
60.000	0.618



77

g. *Lip balm* pasaran

## Kinetics Data Print Report

06/21/202

Time ( Minute )	RawData --
0.000	0.699
1.000	0.697
2.000	0.695
3.000	0.696
4.000	0.696
5.000	0.696
6.000	0.696
7.000	0.696
8.000	0.696
9.000	0.696
10.000	0.696
11.000	0.695
12.000	0.695
13.000	0.695
14.000	0.695
15.000	0.695
16.000	0.695
17.000	0.694
18.000	0.694
19.000	0.694
20.000	0.694
21.000	0.693
22.000	0.693
23.000	0.694
24.000	0.693
25.000	0.693
26.000	0.693
27.000	0.693
28.000	0.692
29.000	0.692
30.000	0.692
31.000	0.692
32.000	0.692
33.000	0.691
34.000	0.691
35.000	0.691
36.000	0.691
37.000	0.691
38.000	0.690
39.000	0.690
40.000	0.690
41.000	0.690
42.000	0.690
43.000	0.690
44.000	0.690
45.000	0.690
46.000	0.689
47.000	0.689
48.000	0.689
49.000	0.689
50.000	0.689

## Kinetics Data Print Report

Time ( Minute )	RawData ...
51.000	0.602
52.000	0.603
53.000	0.603
54.000	0.604
55.000	0.605
56.000	0.606
57.000	0.606
58.000	0.608
59.000	0.609
60.000	0.609

**Lampiran 22. Perhitungan pengenceran sampel uji**

## a. Foto pengenceran



## b. Perhitungan

- Konsentrasi 2 ppm  
 $V1 \cdot C1 = V2 \cdot C2$   
 $V1 \cdot 100 \text{ ppm} = 10 \text{ ml} \cdot 2 \text{ ppm}$   
 $V1 = 20 / 100$   
 $V1 = 0,2 \text{ ml}$
- Konsentrasi 4 ppm  
 $V1 \cdot C1 = V2 \cdot C2$   
 $V1 \cdot 100 \text{ ppm} = 10 \text{ ml} \cdot 4 \text{ ppm}$   
 $V1 = 40 / 100$   
 $V1 = 0,4 \text{ ml}$
- Konsentrasi 8 ppm  
 $V1 \cdot C1 = V2 \cdot C2$   
 $V1 \cdot 100 \text{ ppm} = 10 \text{ ml} \cdot 8 \text{ ppm}$   
 $V1 = 80 / 100$   
 $V1 = 0,8 \text{ ml}$
- Konsentrasi 10ppm  
 $V1 \cdot C1 = V2 \cdot C2$   
 $V1 \cdot 100 \text{ ppm} = 10 \text{ ml} \cdot 10 \text{ ppm}$   
 $V1 = 10 / 100$   
 $V1 = 1 \text{ ml}$

**Lampiran 23. Alat spektro UV-vis**

**Lampiran 24. Perhitungan antioksidan****a. Kuersetin**

Konsentrasi (ppm)	Abs replikasi 1
2	0,594
4	0,591
6	0,569
8	0,558
10	0,545

$$\text{Persen Inhibisi} = \frac{(\text{Abs DPPH} - \text{Abs sampel})}{\text{Abs DPPH}} \times 100\%$$

$$\text{Replikasi 1 (2 ppm)} = \frac{(0,7410 - 0,594)}{0,7410} \times 100\% = 19,84 \%$$

$$\text{Replikasi 1 (4 ppm)} = \frac{(0,7410 - 0,591)}{0,7410} \times 100\% = 20,24 \%$$

$$\text{Replikasi 1 (6 ppm)} = \frac{(0,7410 - 0,569)}{0,7410} \times 100\% = 23,21 \%$$

$$\text{Replikasi 1 (8 ppm)} = \frac{(0,7410 - 0,558)}{0,7410} \times 100\% = 24,70 \%$$

$$\text{Replikasi 1 (10 ppm)} = \frac{(0,7410 - 0,545)}{0,7410} \times 100\% = 26,45 \%$$

Konsentrasi (ppm)	Abs replikasi 2
2	0,593
4	0,590
6	0,568
8	0,557
10	0,543

$$\text{Persen Inhibisi} = \frac{(\text{Abs DPPH} - \text{Abs sampel})}{\text{Abs DPPH}} \times 100\%$$

$$\text{Replikasi 2 (2 ppm)} = \frac{(0,7350 - 0,593)}{0,7410} \times 100\% = 19,32 \%$$

$$\text{Replikasi 2 (4 ppm)} = \frac{(0,7350 - 0,590)}{0,7410} \times 100\% = 19,73 \%$$

$$\text{Replikasi 2 (6 ppm)} = \frac{(0,7350 - 0,568)}{0,7410} \times 100\% = 22,72 \%$$

$$\text{Replikasi 2 (8 ppm)} = \frac{(0,7350 - 0,557)}{0,7410} \times 100\% = 24,22 \%$$

$$\text{Replikasi 2 (10 ppm)} = \frac{(0,7350 - 0,543)}{0,7410} \times 100\% = 26,12 \%$$

Konsentrasi (ppm)	Abs replikasi 3
2	0,592
4	0,589
6	0,567
8	0,556
10	0,542

$$\text{Persen Inhibisi} = \frac{(\text{Abs DPPH} - \text{Abs sampel})}{\text{Abs DPPH}} \times 100\%$$

$$\text{Replikasi 3 (2 ppm)} = \frac{(0,7350 - 0,592)}{0,7410} \times 100\% = 19,46\%$$

$$\text{Replikasi 3 (4 ppm)} = \frac{(0,7350 - 0,589)}{0,7410} \times 100\% = 19,86\%$$

$$\text{Replikasi 3 (6 ppm)} = \frac{(0,7350 - 0,567)}{0,7410} \times 100\% = 22,86\%$$

$$\text{Replikasi 3 (8 ppm)} = \frac{(0,7350 - 0,556)}{0,7410} \times 100\% = 24,35\%$$

$$\text{Replikasi 3 (10 ppm)} = \frac{(0,7350 - 0,542)}{0,7410} \times 100\% = 26,26\%$$

konsentrasi	% inhibisi R1	% inhibisi R 2	% inhibisi R 3
2	19,84	19,32	19,46
4	20,24	19,73	19,86
6	23,21	22,72	22,86
8	24,70	24,22	24,35
10	26,45	26,12	26,26

Replikasi 1

$$a = 17,584$$

$$b = 0,884$$

$$r = 36,67$$

$$IC_{50} = y = a + b x$$

$$50 = 17,584 + 0,884 x$$

$$50 - 17,584 = 0,884 x$$

$$x$$

$$32,416/0,884 = x$$

$$36,67 = x$$

Replikasi 2

$$a = 16,993$$

$$b = 0,905$$

$$r = 0,983$$

$$IC_{50} = y = a + b x$$

$$50 = 16,993 + 0,905 x$$

$$50 - 16,993 = 0,905 x$$

$$x$$

$$33,007/0,905 = x$$

$$36,48 = x$$

Replikasi 3

$$a = 17,129$$

$$b = 0,905$$

$$r = 0,983$$

$$IC_{50} = y = a + b x$$

$$50 = 17,129 + 0,905 x$$

$$50 - 17,129 = 0,905 x$$

$$x$$

$$32,871/0,905 = x$$

$$36,33 = x$$

## b. Ekstrak

Konsentrasi (ppm)	replikasi 1	replikasi 2	replikasi 3
2	0,673	0,67	0,672
4	0,666	0,664	0,663
6	0,654	0,652	0,65
8	0,643	0,64	0,641
10	0,635	0,632	0,633

Abs DPPH = 0,7350

Konsentrasi	% inhibisi R1	% inhibisi R2	% inhibisi R3
2	8,435	8,844	8,571
4	9,388	9,660	9,796
6	11,020	11,293	11,565
8	12,517	12,925	12,789
10	13,605	14,014	13,878
A	6,952	7,265	7,238
B	0,673	0,680	0,680
R	0,997	0,994	0,997
IC50	63,92	62,82	62,86

## c. Basis lip balm

Konsentrasi (ppm)	replikasi 1	replikasi 2	replikasi 3
2	0,749	0,750	0,748
4	0,746	0,747	0,746
6	0,742	0,744	0,745
8	0,738	0,739	0,736
10	0,735	0,736	0,735

Abs DPPH = 0,7625

Konsentrasi	% inhibisi R1	% inhibisi R2	% inhibisi R3
2	2,117	1,986	2,248
4	2,509	2,378	2,509
6	3,032	2,771	2,640
8	3,555	3,424	3,816
10	3,947	3,816	3,947
A	1,620	1,464	1,620
B	0,235	0,235	0,235
R	0,998	0,995	0,942
IC50	205,67	206,33	205,67

d. *Cycling test basis lip balm*

konsentrasi (PPM)	replikasi 1	replikasi 2	replikasi 3
2	0,750	0,752	0,753
4	0,747	0,748	0,749
6	0,744	0,745	0,746
8	0,739	0,74	0,741
10	0,736	0,738	0,739

Abs DPPH = 0,7625

Konsentrasi	% inhibisi R1	% inhibisi R2	% inhibisi R3
2	1,639	1,377	1,246
4	2,033	1,902	1,770
6	2,426	2,295	2,164
8	3,082	2,951	2,820
10	3,475	3,213	3,082
A	1,115	0,931	0,800
B	0,236	0,236	0,236
R	0,995	0,994	0,994
IC50	207,083	207,861	208,417

## e. Formula 1

konsentrasi (PPM)	replikasi 1	replikasi 2	replikasi 3
2	0,644	0,646	0,643
4	0,630	0,632	0,632
6	0,629	0,620	0,623
8	0,619	0,615	0,610
10	0,595	0,600	0,600

Abs DPPH = 0,7625

Konsentrasi	% inhibisi R1	% inhibisi R2	% inhibisi R3
2	15,541	15,279	15,672
4	17,377	17,115	17,115
6	17,508	18,689	18,295
8	18,820	19,344	20,000
10	21,967	21,311	21,311
A	13,954	14,059	14,230
B	0,715	0,715	0,708
R	0,947	0,951	0,999
IC50	50,431	50,284	50,509



f. Formula 1 *cycling test*

konsentrasi (PPM)	replikasi 1	replikasi 2	replikasi 3
2	0,647	0,652	0,650
4	0,634	0,636	0,637
6	0,631	0,633	0,629
8	0,625	0,628	0,617
10	0,597	0,601	0,605

Abs DPPH = 0,7625

Konsentrasi	% inhibisi R1	% inhibisi R2	% inhibisi R3
2	15,148	14,492	14,754
4	16,852	16,590	16,459
6	17,246	16,984	17,508
8	18,033	17,639	19,082
10	21,705	21,180	20,656
A	13,508	13,049	13,364
B	0,715	0,721	0,721
R	0,932	0,938	0,998
IC50	51,055	51,227	50,791

## g. Formula 2

konsentrasi (PPM)	replikasi 1	replikasi 2	replikasi 3
2	0,750	0,748	0,746
4	0,742	0,740	0,730
6	0,725	0,733	0,721
8	0,703	0,721	0,699
10	0,699	0,687	0,693

Abs DPPH = 0,849

Konsentrasi	% inhibisi R1	% inhibisi R2	% inhibisi R3
2	11,661	11,896	12,132
4	12,603	12,839	14,016
6	14,605	13,663	15,077
8	17,197	15,077	17,668
10	17,668	19,081	18,375
A	9,764	9,529	10,612
B	0,830	0,830	0,807
R	0,981	0,935	0,988
IC50	48,454	48,738	48,818

h. Formula 2 *cycling test*

konsentrasi (PPM)	replikasi 1	replikasi 2	replikasi 3
2	0,752	0,754	0,754
4	0,745	0,747	0,744
6	0,728	0,730	0,734
8	0,709	0,710	0,711
10	0,701	0,702	0,7

Abs DPPH = 0,849

Konsentrasi	% inhibisi R1	% inhibisi R2	% inhibisi R3
2	11,425	11,190	11,190
4	12,250	12,014	12,367
6	14,252	14,016	13,545
8	16,490	16,372	16,254
10	17,432	17,314	17,550
A	9,494	9,199	9,199
B	0,813	0,830	0,830
R	0,988	0,987	0,987
IC50	49,841	49,135	49,135

## i. Formula 3

konsentrasi (PPM)	replikasi 1	replikasi 2	replikasi 3
2	0,755	0,750	0,752
4	0,744	0,742	0,740
6	0,729	0,725	0,720
8	0,711	0,708	0,705
10	0,697	0,693	0,696

Abs DPPH = 0,849

Konsentrasi	% inhibisi R1	% inhibisi R2	% inhibisi R3
2	11,072	11,661	11,4252061
4	12,367	12,603	12,8386337
6	14,134	14,605	15,1943463
8	16,254	16,608	16,9611307
10	17,903	18,375	18,0212014
A	9,081	9,541	9,694
B	0,878	0,872	0,866
R	0,997	0,994	0,993
IC50	46,631	46,419	46,558

## j. Formula 3 cycling test

konsentrasi (PPM)	replikasi 1	replikasi 2	replikasi 3
2	0,760	0,762	0,765
4	0,752	0,756	0,758
6	0,738	0,741	0,743
8	0,721	0,723	0,726
10	0,702	0,705	0,709

Abs DPPH = 0,849

Konsentrasi	% inhibisi R1	% inhibisi R2	% inhibisi R3
2	10,483	10,247	9,894
4	11,425	10,954	10,718
6	13,074	12,721	12,485
8	15,077	14,841	14,488
10	17,314	16,961	16,490
A	8,280	7,951	7,72673734
B	0,866	0,866	0,848
R	0,989	0,986	0,990
IC50	48,190	48,571	49,847

## k. Lip balm pasaran

konsentrasi (PPM)	replikasi 1	replikasi 2	replikasi 3
2	0,692	0,689	0,691
4	0,688	0,680	0,686
6	0,672	0,675	0,673
8	0,667	0,660	0,665
10	0,661	0,658	0,660

Abs DPPH = 0,7625

Konsentrasi	% inhibisi R1	% inhibisi R2	% inhibisi R3
2	9,57	9,96	9,70
4	10,09	11,13	10,35
6	12,18	11,79	12,05
8	12,83	13,75	13,09
10	13,62	14,01	13,75
A	8,403	8,913	8,534
B	0,542	0,536	0,542
R	0,977	0,979	0,988
IC50	76,699	76,683	76,458

## Lampiran 25. Hasil SPSS stabilitas aktivitas antioksidan

Tests of Normality<sup>b,c,d,e,f,g,h,i,j</sup>

Uji_Antioksidan		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Uji_Antioksidan_sediaan	F1_Ekstrak 3%	.385	3	.	.750	3	.000
F0_sebelum	F1_Ekstrak 3%	.385	3	.	.750	3	.000
F0_sesudah	F1_Ekstrak 3%	.210	3	.	.991	3	.820
F1_sebelum	F1_Ekstrak 3%	.246	3	.	.970	3	.668
F1_sesudah	F1_Ekstrak 3%	.226	3	.	.983	3	.751
F2_sebelum	F1_Ekstrak 3%	.307	3	.	.903	3	.395
F2_sesudah	F1_Ekstrak 3%	.385	3	.	.750	3	.000
F3_sebelum	F1_Ekstrak 3%	.179	3	.	.999	3	.948
F3_sesudah	F1_Ekstrak 3%	.302	3	.	.911	3	.421

Test Statistics<sup>a</sup>

	F0_sesudah - F0_sebelum	F1_sesudah - F1_sebelum	F2_sesudah - F2_sebelum	F3_sesudah - F3_sebelum
Z	-1.604 <sup>b</sup>	-1.604 <sup>b</sup>	-1.604 <sup>b</sup>	-1.604 <sup>b</sup>
Asymp. Sig. (2-tailed)	.109	.109	.109	.109