LAMPIRAN

Lampiran 1 Determinasi Tanaman Daun Kelor

BRIN
BADAN RISET
DAN INOVASI NASIONAL

DIREKTORAT PENGELOLAAN KOLEKSI ILMIAH
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Nomor   :B-1351/II.6.2/IR.01.02/6/2023   14 Juni 2023
Lampiran   : -
Perihal   : Hasil Identifikasi/Determinasi Tumbuhan

Yth.
Bpk./Ibu/Sdr(i). **Ira Marshella**
Universitas Esa Unggul

Bersama ini kami sampaikan hasil identifikasi/determinasi tumbuhan yang Saudara kirimkan ke "Herbarium Bogoriense", Direktorat Pengelolaan Koleksi Ilmiah BRIN Cibinong, adalah sebagai berikut:

No.	No. Kol.	Jenis	Suku
1.	Daun Kelor	*Moringa oleifera* Lam.	Moringaceae

Demikian, semoga berguna bagi Saudara.

Plt. Direktorat Pengelolaan Koleksi Ilmiah,
Badan Riset dan Inovasi Nasional

TT ELEKTRONIK

Dr. Ratih Damayanti, S.Hut., M.Si.

Dokumen ini ditandatangani secara elektronik menggunakan sertifikat dari BSrE, silahkan lakukan verifikasi pada dokumen elektronik yang dapat diunduh dengan melakukan scan QR Code

41

Lampiran 2 Perhitungan Rendemen Simplisia (%)

(%) Rendemen $= \dfrac{Jumlah\ berat\ simplisia\ kering\ (g)}{Jumlah\ berat\ simplisia\ basah\ (g)} \times 100\%$

$= \dfrac{550\ (g)}{3000\ g} \times 100\%$

$= 18,3\%$

Lampiran 3 Perhitungan Rendemen Ekstrak (%)

$$(\%) \text{ Rendemen} = \frac{jumlah\ berat\ ekstrak\ (g)}{jumlah\ berat\ serbuk\ simplisia\ (g)} \text{ x } 100\%$$

$$= \frac{(163,53+119,9)-163,53(g)}{300\ (g)} \text{ x } 100\%$$

$$= \frac{283,43 - 163,53\ (g)}{300\ (g)} \text{ x } 100\%$$

$$= \frac{119,9\ (g)}{300\ gr} \text{ x } 100\%$$

$$= 39,97\%$$

Keterangan:

Berat ekstrak = (berat cawan + ekstrak) – berat cawan kosong (g)

Berdasarkan perhitungan diatas, maka hasil % rendemen ekstrak etanol daun kelor yaitu 39,97%.

Lampiran 4 Perhitungan Sediaan Gel 100 Gram

Perhitungan bahan :

F1 = Ekstrak daun kelor $= \frac{6}{100}$ x 100 gram = 6 gram

Carbomer $= \frac{0,6}{100}$ x 100 gram = 0,6 gram

Air untuk carbomer = 0,6 gram x 20 = 12 ml

Na-CMC $= \frac{2,4}{100}$ x 100 gram = 2,4 gram

Air untuk Na-CMC = 2,4 gram x 20 = 48 ml

Trietanolamin $= \frac{0,2}{100}$ x 100 gram = 0,2 gram

Metil paraben $= \frac{0,2}{100}$ x 100 gram = 0,2 gram

Propilenglikol $= \frac{15}{100}$ x 100 gram = 15 gram

Aquadest = 100 – (6 g + 0,6 g + 12 ml + 48 ml + 0,2 g

+ 15 g + 0,2 g)

= 18 ml

F2 = Ekstrak daun kelor $= \frac{6}{100}$ x 100 gram = 6 gram

Carbomer $= \frac{0,9}{100}$ x 100 gram = 0,9 gram

Air untuk carbomer = 0,9 gram x 20 = 18 ml

Na-CMC $= \frac{2,1}{100}$ x 100 gram = 2,1 gram

Air untuk Na-CMC = 2,1 gram x 20 = 42 ml

Trietanolamin $= \frac{0,2}{100}$ x 100 gram = 0,2 gram

Metil paraben $= \frac{0,2}{100}$ x 100 gram = 0,2 gram

Propilenglikol $= \frac{15}{100}$ x 100 gram = 15 gram

Aquadest = 100 – (6 g + 0,9 g + 18 ml + 2,1 g + 42 ml

+ 0,2 g + 15 g)

= 15,4 ml

F3   =   Ekstrak daun kelor $= \frac{6}{100}$ x 100 gram   = 6 gram

Carbomer $= \frac{1,2}{100}$ x 100 gram   = 1,2 gram

Air untuk carbomer   = 1,2 gram x 20   = 24 ml

Na-CMC $= \frac{1,8}{100}$ x 100 gram   = 1,8 gram

Air untuk Na-CMC   = 1,8 gram x 20   = 36 ml

Trietanolamin $= \frac{0,2}{100}$ x 100 gram   = 0,2 gram

Metil paraben $= \frac{0,2}{100}$ x 100 gram   = 0,2 gram

Propilenglikol $= \frac{15}{100}$ x 100 gram   = 15 gram

Aquadest   = 100 – (6 g + 1,2 g + 24 ml + 1,8 g + 36 ml

+ 0,2 g + 0,2 g + 15 g)

= 15,6 ml

F4   =   Ekstrak daun kelor $= \frac{6}{100}$ x 100 gram   = 6 gram

Carbomer $= \frac{1,5}{100}$ x 100 gram   = 1,5 gram

Air untuk carbomer   = 1,5 gram x 20   = 30 ml

Na-CMC $= \frac{1,5}{100}$ x 100 gram   = 1,5 gram

Air untuk carbomer   = 1,5 gram x 20   = 30 ml

Trietanolamin $= \frac{0,2}{100}$ x 100 gram   = 0,2 gram

Metil paraben $= \frac{0,2}{100}$ x 100 gram   = 0,2 gram

Propilenglikol $= \frac{15}{100}$ x 100 gram   = 15 gram

Aquadest   = 100 – (6 g + 1,5 g + 30 ml + 1,5 g + 30 ml

+ 0,2 g + 0,2 g + 15 g)

= 15,6 ml

F5 = Ekstrak daun kelor $= \frac{6}{100}$ x 100 gram = 6 gram

Carbomer $= \frac{1,8}{100}$ x 100 gram = 1,8 gram

Air untuk carbomer = 1,8 gram x 20 = 36 ml

Na-CMC $= \frac{1,2}{100}$ x 100 gram = 1,2 gram

Air untuk Na-CMC = 1,2 gram x 20 = 24 ml

Trietanolamin $= \frac{0,2}{100}$ x 100 gram = 0,2 gram

Metil paraben $= \frac{0,2}{100}$ x 100 gram = 0,2 gram

Propilenglikol $= \frac{15}{100}$ x 100 gram = 15 gram

Aquadest = 100 – (6 g + 1,5 g + 30 ml + 1,5 g + 30 ml

+ 0,2 g + 0,2 g + 15 g)

= 15,6 ml

Lampiran 5 Perhitungan Sediaan Gel Formula Optimum 300 Gram

Perhitungan bahan :

Formula 1

Ekstrak daun kelor	$= \frac{6}{100}$ x 300 gram	= 18 gram
Carbomer	$= \frac{0,6}{100}$ x 300 gram	= 1,8 gram
Air untuk carbomer	= 3 gram x 20	= 36 ml
Na-CMC	$= \frac{2,4}{100}$ x 300 gram	= 7,2 gram
Air untuk Na-CMC	= 2,4 gram x 20	= 144 ml
Trietanolamin	$= \frac{0,2}{100}$ x 300 gram	= 0,6 gram
Metil paraben	$= \frac{0,2}{100}$ x 300 gram	= 0,6 gram
Propilenglikol	$= \frac{15}{100}$ x 300 gram	= 45 gram

Aquadest = 100 – (18 g + 1,8 g + 36 ml + 7,2 g + 144 ml + 0,6 g +

0,6 g + 45 g)

= 46,8 ml

Lampiran 6 Perhitungan (%) Sineresis

Perhitungan sineresis

Rumus : Perhitungan persentase (%) sineresis:

$$\text{Sineresis (\%)} = \frac{berat\ awal - berat\ akhir}{berat\ awal} \times 100\%$$

Suhu 35ºC

Jam ke-24 :

$$\text{Sineresis (\%)} = \frac{225{,}26 - 225{,}20}{225{,}26} \times 100\%$$

$$= 0{,}027\%$$

Jam ke-48 :

$$\text{Sineresis (\%)} = \frac{225{,}26 - 225{,}16}{225{,}26} \times 100\%$$

$$= 0{,}044\%$$

Jam ke-72 :

$$\text{Sineresis (\%)} = \frac{225{,}26 - 225{,}14}{225{,}26} \times 100\%$$

$$= 0{,}053\%$$

Suhu 5ºC

Jam ke-24 :

$$\text{Sineresis (\%)} = \frac{225{,}41 - 225{,}36}{225{,}41} \times 100\%$$

$$= 0{,}05\%$$

Jam ke-48 :

$$\text{Sineresis (\%)} = \frac{225{,}41 - 225{,}33}{225{,}41} \times 100\%$$

$$= 0{,}08\%$$

Jam ke-72 :

$$\text{Sineresis (\%)} = \frac{225{,}41 - 225{,}31}{225{,}41} \times 100\%$$

$$= 0{,}1\%$$

Lampiran 7 Hasil Formula Yang Optimum

Solutions

1 Solutions found

Number	Karbopol 940	CMC-Na	Uji pH	Uji Daya Sebar	Uji Daya Lekat	Desirability	
1	20.000	80.000	6.444	5.656	3.460	0.849	Selected

Lampiran 8 Hasil ANOVA *Fit Statistik Simplex Lattice Design*

ANOVA for *Quadratic model*

ANOVA for Linear model

Response 1: Uji pH

Source	Sum of Squares	df	Mean Square	F-value	p-value	
Model	0.5033	1	0.5033	294.32	< 0.0001	significant
(1)Linear Mixture	0.5033	1	0.5033	294.32	< 0.0001	
Residual	0.0103	6	0.0017			
Lack of Fit	0.0044	3	0.0015	0.7540	0.5890	not significant
Pure Error	0.0059	3	0.0020			
Cor Total	0.5136	7				

Fit Statistics

Std. Dev.	0.0414		R^2	0.9800
Mean	6.11		**Adjusted R^2**	0.9767
C.V. %	0.6768		**Predicted R^2**	0.9577
			Adeq Precision	32.3491

ANOVA for Linear model

Response 2: Uji Daya Sebar

Source	Sum of Squares	df	Mean Square	F-value	p-value	
Model	0.3254	1	0.3254	279.10	< 0.0001	significant
(1)Linear Mixture	0.3254	1	0.3254	279.10	< 0.0001	
Residual	0.0070	6	0.0012			
Lack of Fit	0.0042	3	0.0014	1.50	0.3739	not significant
Pure Error	0.0028	3	0.0009			
Cor Total	0.3323	7				

Fit Statistics

Std. Dev.	0.0341		R^2	0.9790
Mean	5.39		**Adjusted R^2**	0.9754
C.V. %	0.6337		**Predicted R^2**	0.9572
			Adeq Precision	31.5015

ANOVA for Linear model

Response 3: Uji Daya Lekat

Source	Sum of Squares	df	Mean Square	F-value	p-value	
Model	1.17	1	1.17	71.69	0.0001	significant
(1)Linear Mixture	1.17	1	1.17	71.69	0.0001	
Residual	0.0975	6	0.0163			
Lack of Fit	0.0049	3	0.0016	0.0527	0.9813	not significant
Pure Error	0.0927	3	0.0309			
Cor Total	1.26	7				

Fit Statistics

Std. Dev.	0.1275		R^2	0.9228
Mean	2.95		Adjusted R^2	0.9099
C.V. %	4.32		Predicted R^2	0.8271
			Adeq Precision	15.9656

Lampiran 9 Analisis Data SPSS *One Sample T-Test*

Uji pH

→ T-Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Hasil	3	6,3867	,03215	,01856

One-Sample Test

Test Value = 6.44

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Hasil	-2,874	2	,103	-,05333	-,1332	,0265

Uji daya sebar

→ T-Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Hasil	3	5,4333	,40415	,23333

One-Sample Test

Test Value = 5.65

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Hasil	-,929	2	,451	-,21667	-1,2206	,7873

Uji daya lekat

→ T-Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Hasil	3	3,2667	,20817	,12019

One-Sample Test

Test Value = 3.46

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Hasil	-1,609	2	,249	-,19333	-,7104	,3238

Lampiran 10 Alat dan Bahan

Rotary evaporator	Neraca analitik
Hot Plate	Viskometer digital
pH meter	Grinder

Carbomer	Na-CMC
Trietanolamin (TEA)	Propilenglikol
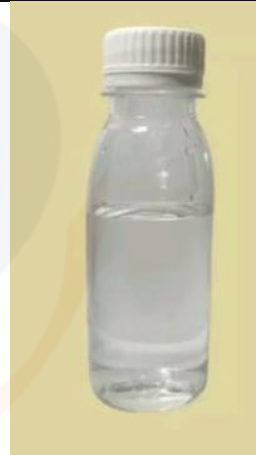
Metilparaben

Lampiran 11 *Certificate Of Analysis* (COA)

Carbopol	Na-CMC
Trietanolamin (TEA)	Propilenglikol
Metilparaben	

Lampiran 12 Dokumentasi Skrining Fitokimia
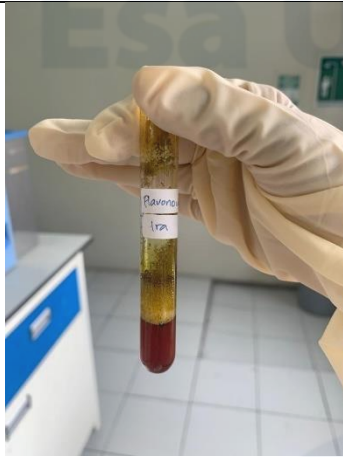
Flavonoid (Posif)	Tanin (Positif)
Saponin (Positif)	Alkaloid preaksi Mayer (Positif)
Alkaloid preaksi Dragendorf (Positif)	Steroid (Negatif)

Triterpenoid
(Negatif)

Lampiran 13 Dokumentasi Lain Lain

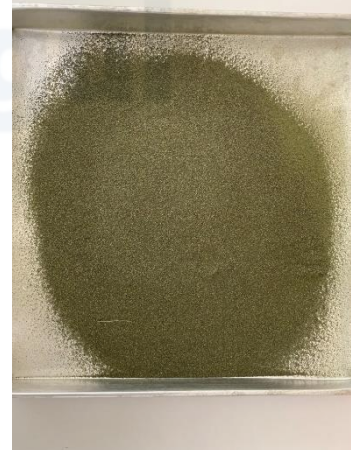Daun kelor

Proses pencucian

Pengeringan oven

Daun kelor kering

Grinder

Pengayakan

Proses ekstraksi maserasi

Pengadukan maserasi
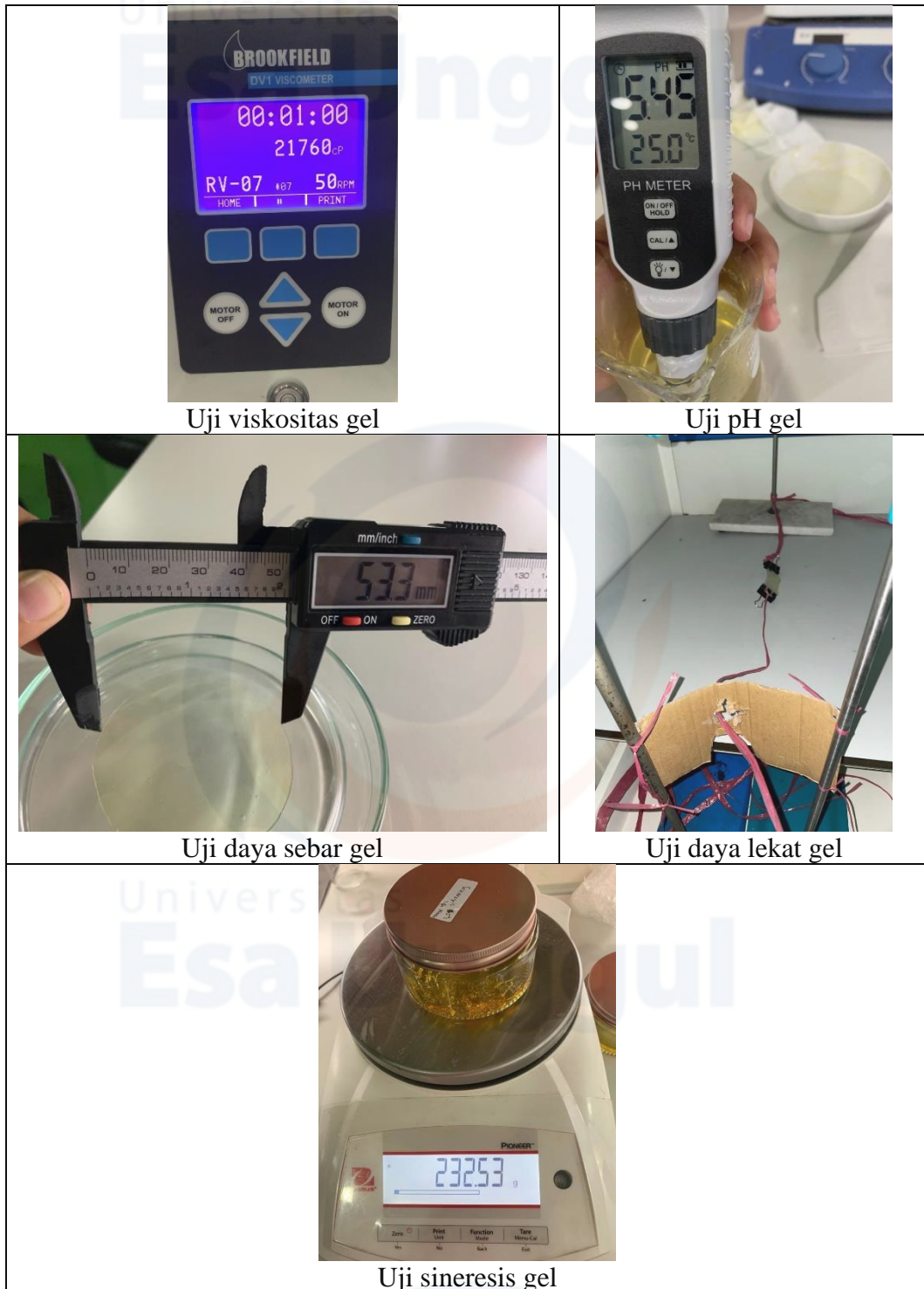

Penyaringan filtrat ekstrak etanol daun kelor

Penguapan pelarut dengan alat *rotary evaporator*

Gel ekstrak etanol daun kelor

Uji homogenitas

Uji viskositas gel

Uji pH gel

Uji daya sebar gel

Uji daya lekat gel

Uji sineresis gel