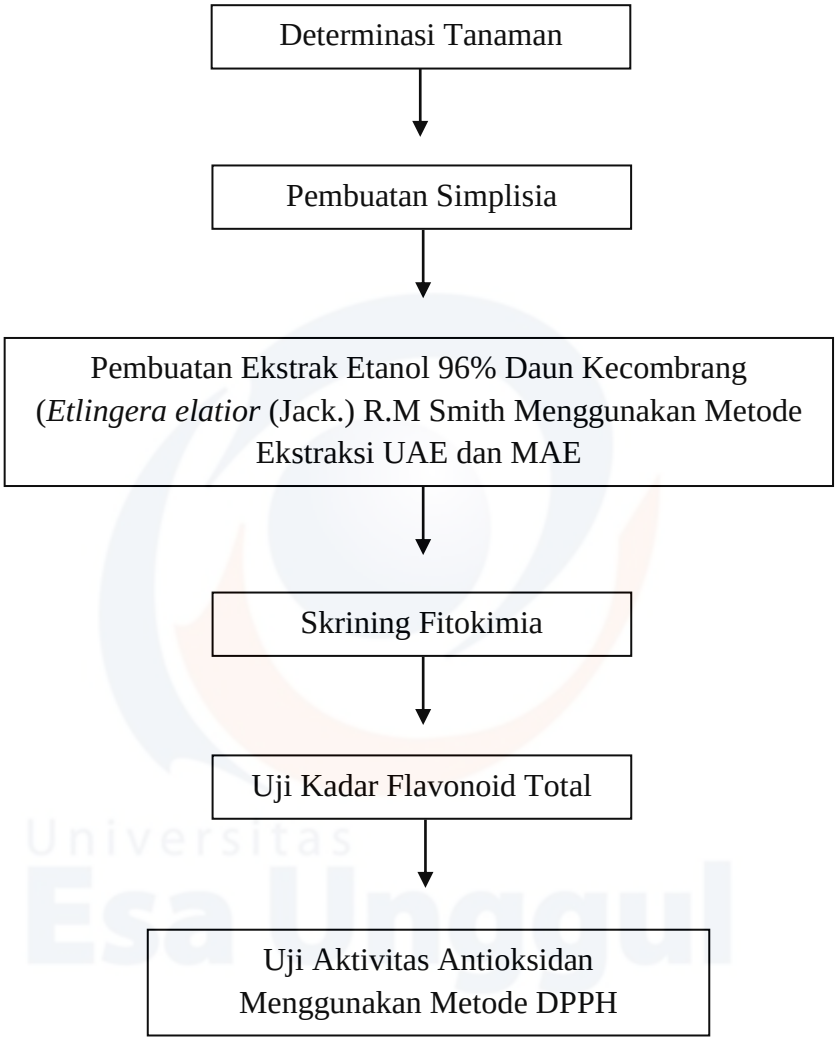
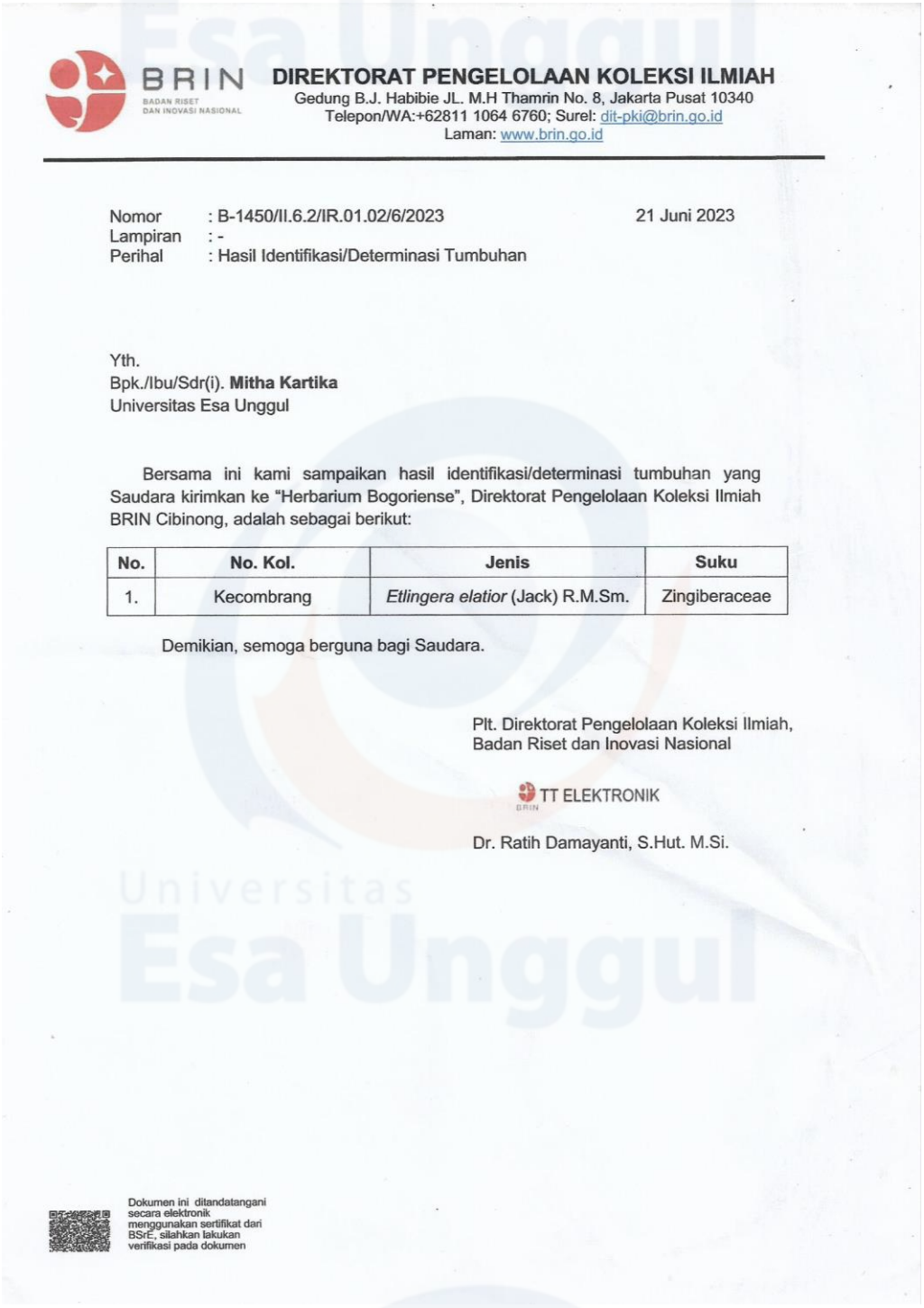
LAMPIRAN

Lampiran 1. Rancangan Penelitian



Lampiran 2. Determinasi Tanaman



BRIN
BADAN RISET DAN INOVASI NASIONAL

DIREKTORAT PENGELOLAAN KOLEKSI ILMIAH
Gedung B.J. Habibie JL. M.H Thamrin No. 8, Jakarta Pusat 10340
Telepon/WA:+62811 1064 6760; Surel: dit-pki@brin.go.id
Laman: www.brin.go.id

Nomor : B-1450/II.6.2/IR.01.02/6/2023 21 Juni 2023
Lampiran : -
Perihal : Hasil Identifikasi/Determinasi Tumbuhan

Yth.
Bpk./Ibu/Sdr(i). **Mitha Kartika**
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.	Kecombrang	*Etlingera elatior* (Jack) R.M.Sm.	Zingiberaceae

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

Lampiran 3. Kadar Air dan Kadar Abu

28.1/F-PP Revisi 4

No	Parameter	Unit	Simplo	Duplo	Limit Of Detection	Method
1	Kadar Abu	%	7.33	7.56	-	SNI 01-2891-1992 point 6.1
2	Kadar Air	%	10.53	10.68	-	SNI 01-2891 - 1992, point 5 . 1

Bogor, 25 Juli 2023
PT. Saraswanti Indo Genetech

PT. SARASWANTI INDO GENETECH INDONESIA BOGOR

Dwi Yulianto Laksono, S.Si
General Laboratory Manager

PT SARASWANTI INDO GENETECH
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Lampiran 4. Pembuatan Simplisia

Pengumpulan daun kecombrang

Sortasi Basah

Pencucian

Perajangan

Pengeringan

Sortasi kering

Serbuk simplisia

Lampiran 5. Pembuatan Ekstrak Daun Kecombrang

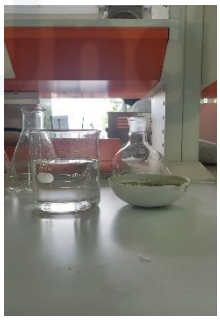
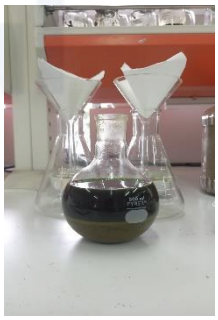
1. Metode Ekstraksi UAE








2. Metode Ekstraksi MAE


Lampiran 6. Perhitungan Rendemen

1. **Rendemen Simplisia**

   Simplisia basah = 10000 gram
   Simplia Kering = 3200 gram
   Rendemen = $\frac{10000}{8250}$ x 100 %
   = 32 %

2. **Rendemen Ekstrak Etanol 96% Daun Kecombrang**

   a. Metode UAE

   Simplisia Kering = 200 gram
   Ekstrak Kental Etanol 96% = 41,75 gram
   Rendemen Ekstrak = $\frac{41,75}{200}$ x 100 %
   = 20,87 %

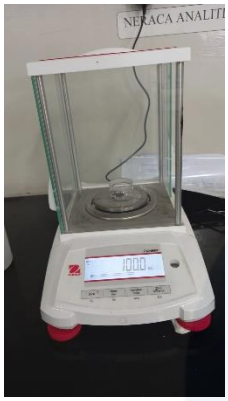
   b. Metode MAE

   Simplisia Kering = 200 gram
   Ekstrak Kental Etanol 96% = 38,30
   Rendemen Ekstrak = $\frac{38,30}{200}$ x 100 %
   = 19,15 %

Lampiran 7. Skrinning Fitokimia

- **Pereaksi skrining fitokimia**

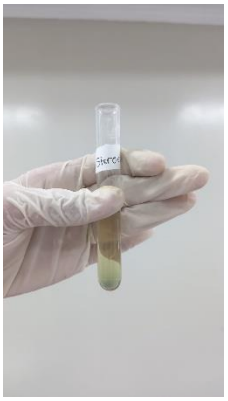
- **Hasil Uji Skrining Fitokimia**



Ekstrak Kecombrang

Larutan Ekstrak Kecombrang

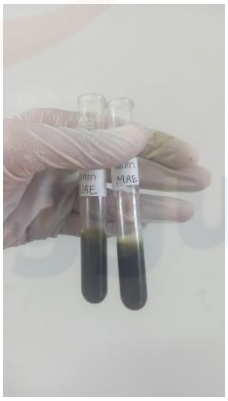
Flavonoid



Steroid

Triterpenoid

Saponin



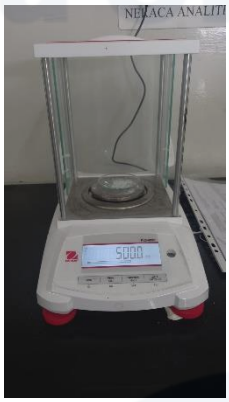
Tannin

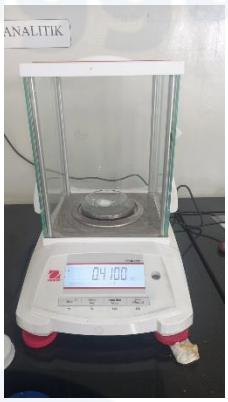
Alkaloid

Lampiran 8. Uji Flavonoid Total

- **Penimbangan Bahan**


Penimbangan kuersetin


Penimbangan AICI3 10%


Penimbangan natrium asetat 1M


Penimbangan ekstrak

- **Larutan Uji Flavonoid Total**


Kuersetin 1000 ppm


$AICI_3$ 10%


Natrium Asetat 1 M


Larutan Ekstrak

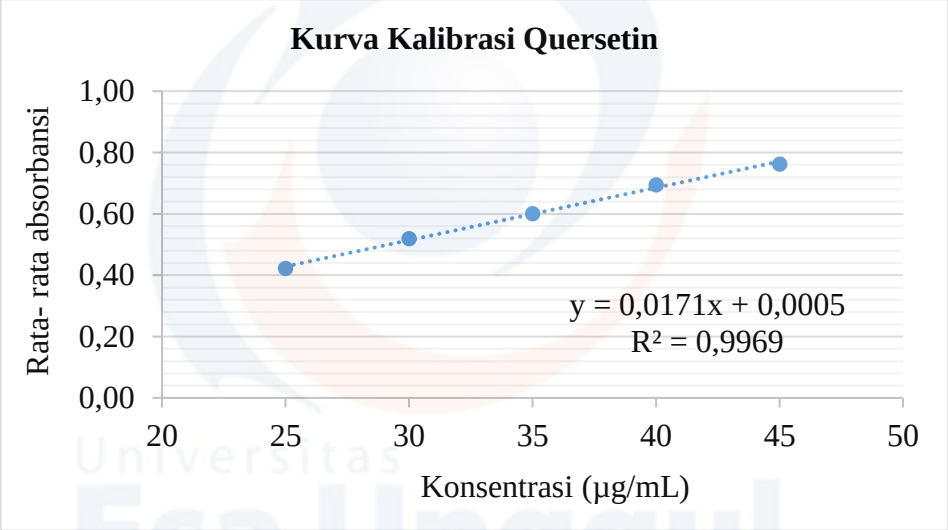
Larutan standar kuersetin

1. Penentuan Panjang Gelombang Maksimum Kuersetin (425 nm)

405	410	415	420	425	430	435	440	445
0,637	0,6893	0,7335	0,7585	0,7656	0,7527	0,7163	0,653	0,5791
0,7057	0,7694	0,8193	0,8509	0,8621	0,8509	0,8113	0,7446	0,6589
0,7257	0,7889	0,8384	0,8693	0,8785	0,8646	0,8226	0,7487	0,6624
0,6781	0,7383	0,7852	0,8153	0,8255	0,8144	0,7763	0,7123	0,6312

2. Data pengukuran Kurva Kalibrasi Kuersetin

Konsentrasi (µg/mL)	Abs. Pengukuran			Rata-rata	Abs. Quersetin
	1	2	3		
25	0,4845	0,4820	0,4926	0,4864	0,4218
30	0,5768	0,5851	0,5901	0,5840	0,5194
35	0,6616	0,6652	0,6677	0,6648	0,6003
40	0,7459	0,7590	0,7720	0,7590	0,6944
45	0,8317	0,8319	0,8170	0,8269	0,7623
Blanko	0,0637	0,0644	0,0656	0,0646	
Persamaan regresi linier y = 0,0171x + 0,0005 Nilai R^2 = 0,9969					



3. Data Absorbansi sampel

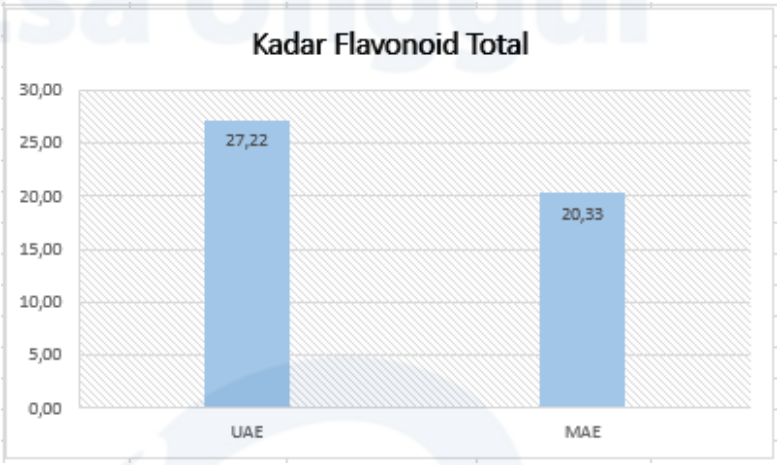
UAE					
Konsentrasi (µg/mL)	Abs. Pengukuran			Rata-rata	Abs. Sampel
	1	2	3		
1000	0,5257	0,5435	0,5226	0,5306	0,4660
Blanko	0,0637	0,0644	0,0656	0,0646	

MAE					
Konsentrasi (µg/mL)	**Abs. Pengukuran**			**Rata-rata**	**Abs. Sampel**
	1	**2**	**3**		
1000	0,4215	0,4050	0,4114	0,4126	0,3481
Blanko	0,0637	0,0644	0,0656	0,0646	

4. Data Kadar Flavonoid Total

UAE					
Pengulangan	**Abs. Pengukuran**	**Abs. Blanko**	**Abs. Sampel**	**KTF (mgQE/g)**	**Rata-rata KTF (mgQE/g)**
1	0,5257	0,0637	0,4620	26,99	27,22
2	0,5435	0,0644	0,4791	27,99	
3	0,5226	0,0656	0,4570	26,70	

MAE					
Pengulangan	**Abs. Pengukuran**	**Abs. Blanko**	**Abs. Sampel**	**KTF (mgQE/g)**	**Rata-rata KTF (mgQE/g)**
1	0,4215	0,0637	0,3578	20,89	20,33
2	0,4050	0,0644	0,3406	19,89	
3	0,4114	0,0656	0,3458	20,19	



5. Perhitungan Uji Flavonoid Total

a. Larutan Induk Kuersetin 1000 ppm = $\frac{5\ mg}{5\ mL}$

Larutan induk kuersetin 1000 ppm yaitu 1 mg/mL atau 1000 µg/mL

b. Larutan Kuersetin 50 ppm

V1 . M1 = V2 . M2
V1 . 1000 µg/mL = 5 . 50 µg/mL
V1 = $\frac{250}{1000}$
V1 = 0,25 mL
= 250 µL

c. Larutan Seri Kuersetin

- Konsentrasi 25 ppm

V1 . M1 = V2 . M2
V1 . 1000 µg/mL = 5 . 25 µg/mL
V1 = $\frac{125}{1000}$
V1 = 0,125 mL
= 125 µL

- Konsentrasi 30 ppm

V1 . M1 = V2 . M2
V1 . 1000 µg/mL = 5 . 30 µg/mL
V1 = $\frac{150}{1000}$
V1 = 0,150 mL
= 150 µL

- Konsentrasi 35 ppm

V1 . M1 = V2 . M2
V1 . 1000 µg/mL = 5 . 35 µg/mL
V1 = $\frac{175}{1000}$
V1 = 0,175 mL
= 175 µL

- Konsentrasi 40 ppm

V1 . M1 = V2 . M2
V1 . 1000 µg/mL = 5 . 40 µg/mL
V1 = $\frac{200}{1000}$
V1 = 0,2 mL
= 200 µL

- Konsentrasi 45 ppm

V1 . M1 = V2 . M2
V1 . 1000 µg/mL = 5 . 45 µg/mL

V1 $= \frac{225}{1000}$

V1 = 0,225 mL

= 225 µL

d. Larutan Induk Sampel Ekstrak

$\frac{5\ mg}{5\ mL}$ = 1 mg/mL = 1000 µg/mL

e. Konsentrasi flavonoid dalam larutan ekstrak kental Daun Kecombrang (mg/mL)

- UAE

  $x = \frac{Absorbansi\ sampel - 0{,}0005}{0{,}0171}$

  $x = \frac{0{,}4660 - 0{,}0005}{0{,}0171}$

  x = 27,222 (µg/mL)

  $X = \frac{27{,}222}{1000}$ = 0,0272 (mg/mL)

- MAE

  $x = \frac{Absorbansi\ sampel - 0{,}0005}{0{,}0171}$

  $x = \frac{0{,}3481 - 0{,}0005}{0{,}0171}$

  x = 20,327 (µg/mL)

  $X = \frac{20{,}327}{1000}$ = 0,0203 (mg/mL)

f. Kadar Flavonoid Total ekstrak kental daun kecombrang

- UAE

  $A = \frac{cf\ x\ V\ x\ FP}{m}$

  $A = \frac{0{,}0272\ x\ 5mL\ x\ 1}{0{,}005}$ = 27,22 mgQE/g ekstrak

- MAE

  $A = \frac{cf\ x\ V\ x\ FP}{m}$

  $A = \frac{0{,}0203\ x\ 5mL\ x\ 1}{0{,}005}$ = 20,33 mgQE/g ekstrak

Keterangan :

Cf = Konsentrasi Flavonoid total dari persamaan regresi (mg/mL)

V = Volume sampel (L)

FP = Faktor Pengenceran

M = Berat sampel (g)

Lampiran 9. Uji Aktivitas Antioksidan

- Penimbangan Bahan


- **Larutan Uji Aktivitas Antioksidan**

Larutan DPPH 0,2 mM

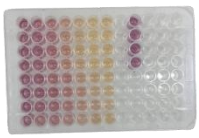
Larutan asam askorbat 1000 ppm

Larutan ekstrak 1000 ppm

Larutan standar asam askorbat

Larutan standar MAE

Larutan standar UAE



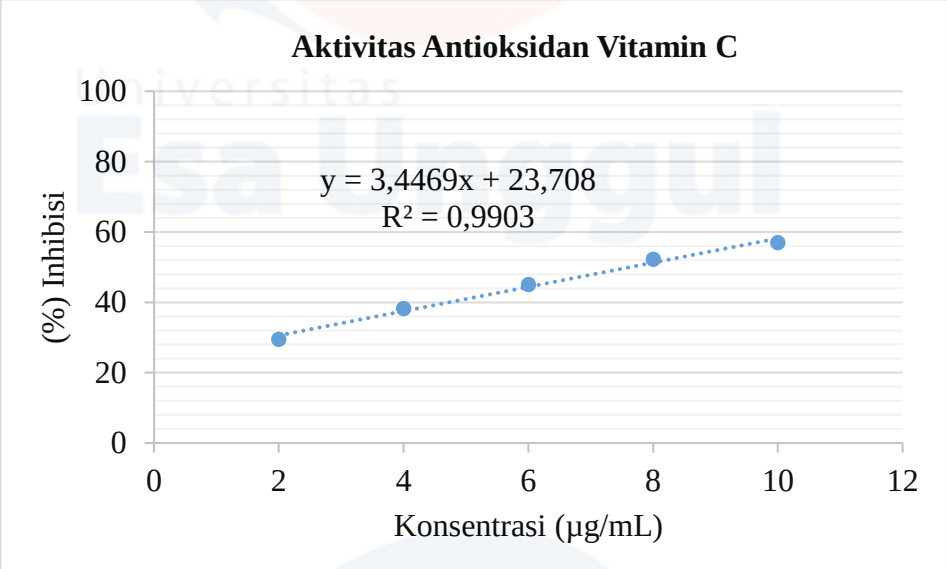
1. Panjang Gelombang Maksimum DPPH 0,2 mM (517 nm)

505	508	511	514	517	520	523	526	529
0,7146	0,7411	0,7457	0,7655	0,7968	0,7928	0,7834	0,7658	0,7472
0,7101	0,7361	0,7579	0,7624	0,8348	0,8308	0,8207	0,8019	0,7828
0,7328	0,7379	0,7490	0,7513	0,8143	0,8102	0,8007	0,7829	0,7640

2. Pengujian Larutan Standar Vitamin C

Konsentrasi (µg/mL)	Abs. Pengulangan			Rata-rata	Abs. Sampel	% Inhibisi	IC_{50} (µg/mL)
	1	2	3				
2	0,5463	0,5501	0,5589	0,5518	0,5113	29,48	7,63
4	0,4906	0,4936	0,4806	0,4883	0,4478	38,23	
6	0,4367	0,4297	0,4500	0,4388	0,3983	45,06	
8	0,3967	0,3927	0,371	0,3868	0,3463	52,23	
10	0,3395	0,3413	0,3770	0,3526	0,3121	56,95	

	Abs. Pengulangan			Rata-rata
	1	2	3	
Larutan DPPH	0,7728	0,7468	0,7768	0,7655
Metanol p.a	0,0412	0,0402	0,0400	0,0405
Kontrol				0,7250

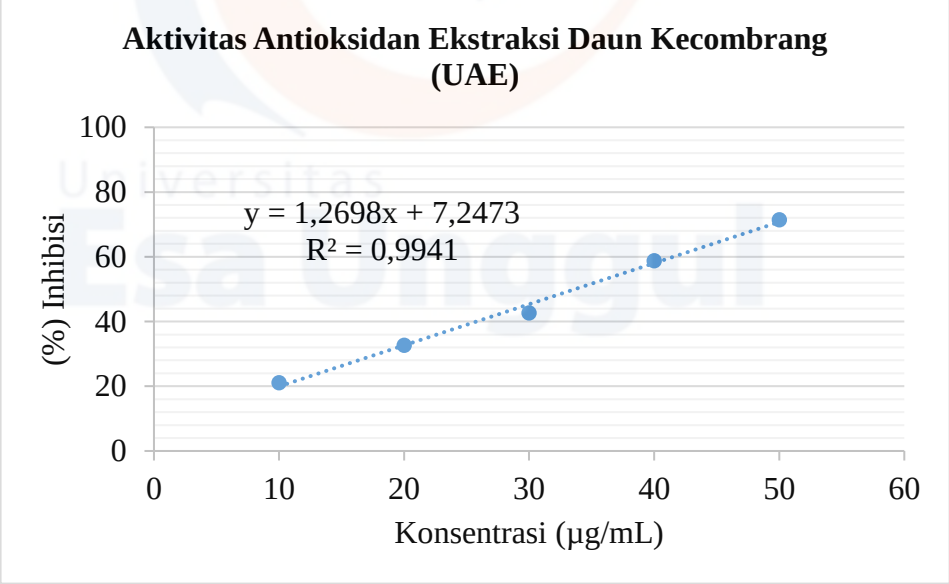


3. Pengujian Aktivitas Antioksidan Sampel Ekstrak Kental Daun Kecombrang

- Metode Ekstraksi UAE

Konsentrasi (µg/mL)	Abs. Pengulangan			Rata-rata	Abs. Sampel	% Inhibisi	IC50
	1	2	3				
10	0,5796	0,5567	0,5548	0,5637	0,5136	21,07	33,67
20	0,4794	0,4997	0,4854	0,4882	0,4380	32,68	
30	0,4259	0,4331	0,4106	0,4232	0,3731	42,66	
40	0,3229	0,3254	0,3058	0,3180	0,2679	58,82	
50	0,2449	0,2337	0,2284	0,2357	0,1855	71,48	

	Abs. Pengulangan			Rata-rata
	1	2	3	
Larutan DPPH	0,6883	0,6944	0,7196	0,7008
metanol p.a	0,0532	0,0492	0,0480	0,0501
Kontrol				0,6506

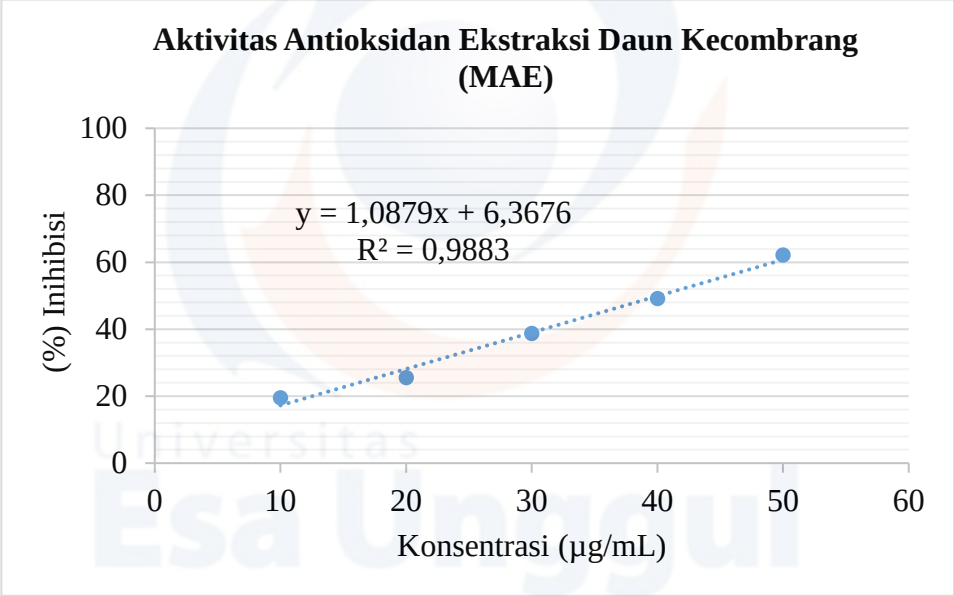


- Metode Ekstraksi MAE

Konsentrasi (µg/mL)	Abs. Pengulangan			Rata-rata	Abs. Sampel	% Inhibisi	IC50
	1	2	3				
10	0,5781	0,5895	0,5542	0,5739	0,5238	19,49	40,11

20	0,5498	0,5328	0,5202	0,5343	0,4841	25,59	
30	0,4328	0,4359	0,4783	0,4490	0,3989	38,70	
40	0,3977	0,3525	0,3933	0,3812	0,3310	49,12	
50	0,2657	0,3214	0,3026	0,2966	0,2464	62,12	

	Abs. Pengulangan			**Rata-rata**
	1	**2**	**3**	
Larutan DPPH	0,6883	0,6944	0,7196	0,7008
Metanol p.a	0,0532	0,0492	0,0480	0,0501
Kontrol				0,6506



4. Perhitungan Uji Aktivitas Antioksidan
   a. Larutan DPPH 0,2 mM

      Larutan DPPH 0,2 mM = $\frac{3{,}94\ \text{mg}}{50\ \text{mL}}$ = 0,2 mM
   b. Larutan Induk Vitamin C 1000 ppm

      Larutan Induk Vitamin C = $\frac{10\ \text{mg}}{10\ \text{mL}}$ = 1000 ppm
   c. Larutan Seri Vitamin C
      - Konsentrasi 2 ppm

        V1 . M1 = V2 . M2

        V1 . 1000 µg/mL = 5 . 2 µg/mL

        V1 = $\frac{10}{1000}$

V1 = 0,01 mL
= 10 µL

- Konsentrasi 4 ppm
  V1 . M1 = V2 . M2
  V1 . 1000 µg/mL = 5 . 4 µg/mL
  V1 = $\frac{20}{1000}$
  V1 = 0,02 mL
  = 20 µL
- Konsentrasi 6 ppm
  V1 . M1 = V2 . M2
  V1 . 1000 µg/mL = 5 . 6 µg/mL
  V1 = $\frac{30}{1000}$
  V1 = 0,03 mL
  = 30 µL

- Konsentrasi 8 ppm
  V1 . M1 = V2 . M2
  V1 . 1000 µg/mL = 5 . 8 µg/mL
  V1 = $\frac{40}{1000}$
  V1 = 0,04 mL
  = 40 µL
- Konsentrasi 10 ppm
  V1 . M1 = V2 . M2
  V1 . 1000 µg/mL = 5 . 10 µg/mL
  V1 = $\frac{50}{1000}$
  V1 = 0,05 mL
  = 50 µL

d. Larutan Induk Sampel Ekstrak 1000 ppm
   Larutan Induk Sampel Ekstrak = $\frac{10\ mg}{10\ mL}$ = 1000 ppm
e. Larutan Seri Sampel Ekstrak
   - Konsentrasi 10 ppm
     V1 . M1 = V2 . M2
     V1 . 1000 µg/mL = 5 . 10 µg/mL
     V1 = $\frac{50}{1000}$
     V1 = 0,05 mL
     = 50 µL

- Konsentrasi 20 ppm

  V1 . M1 = V2 . M2
  V1 . 1000 µg/mL = 5 . 20 µg/mL
  V1 = $\frac{100}{1000}$
  V1 = 0,1 mL
  = 100 µL

- Konsentrasi 30 ppm

  V1 . M1 = V2 . M2
  V1 . 1000 µg/mL = 5 . 30 µg/mL
  V1 = $\frac{150}{1000}$
  V1 = 0,15 mL
  = 150 µL

- Konsentrasi 40 ppm

  V1 . M1 = V2 . M2
  V1 . 1000 µg/mL = 5 . 40 µg/mL
  V1 = $\frac{200}{1000}$
  V1 = 0,2 mL
  = 200 µL

- Konsentrasi 50 ppm

  V1 . M1 = V2 . M2
  V1 . 1000 µg/mL = 5 . 50 µg/mL
  V1 = $\frac{250}{1000}$
  V1 = 0,25 mL
  = 250 µL