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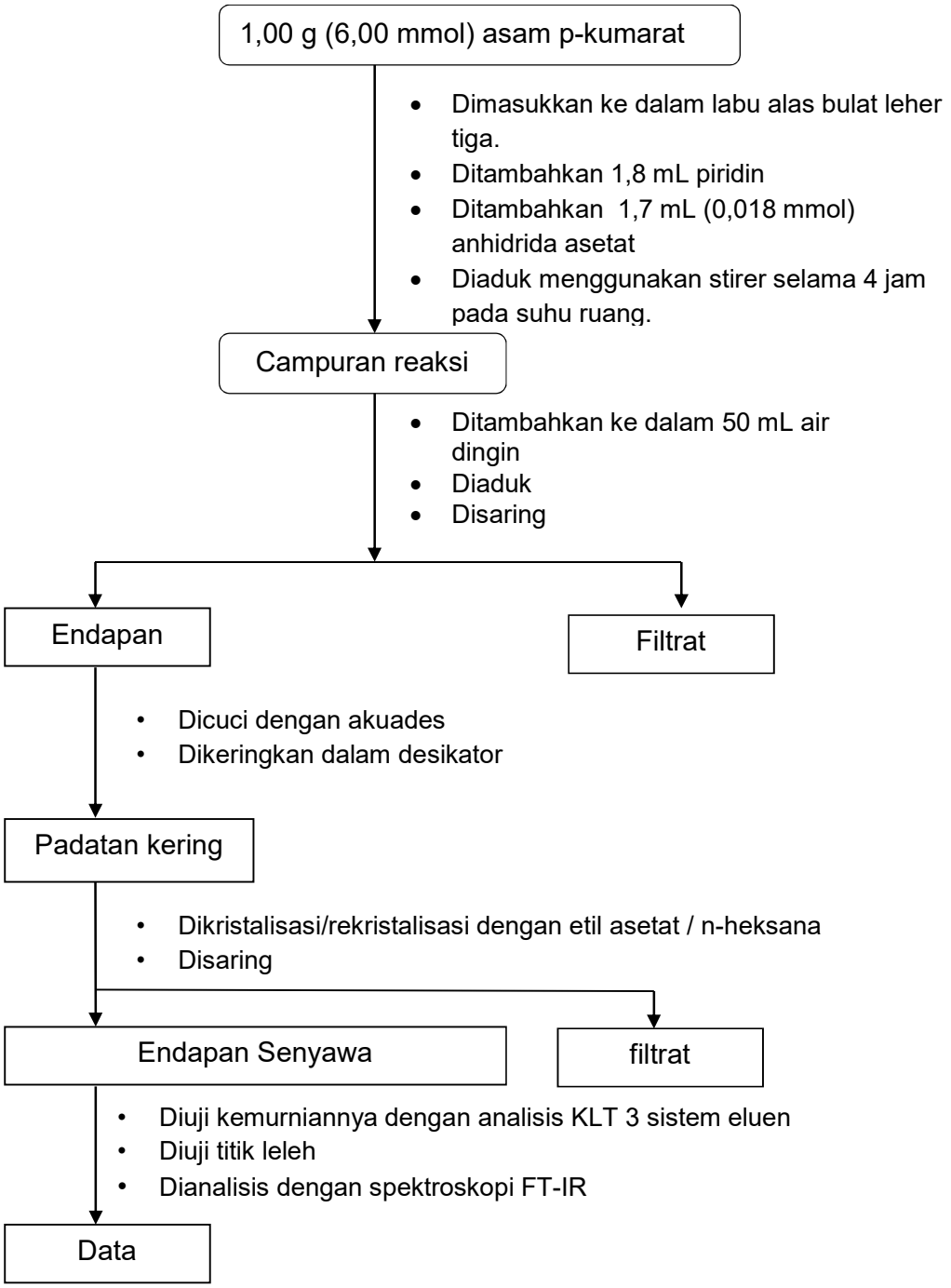
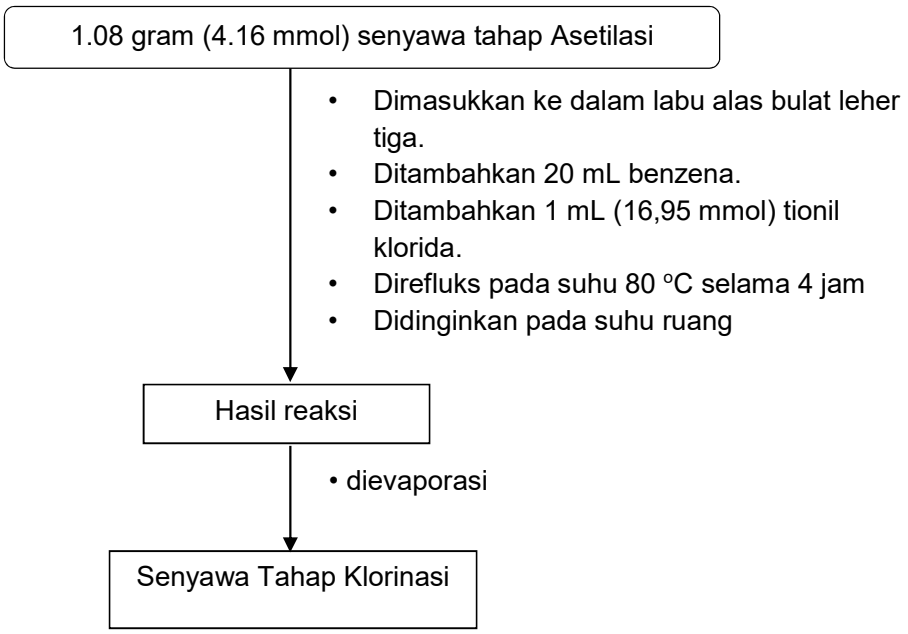
Lampiran 1. Bagan Prosedur Penelitian

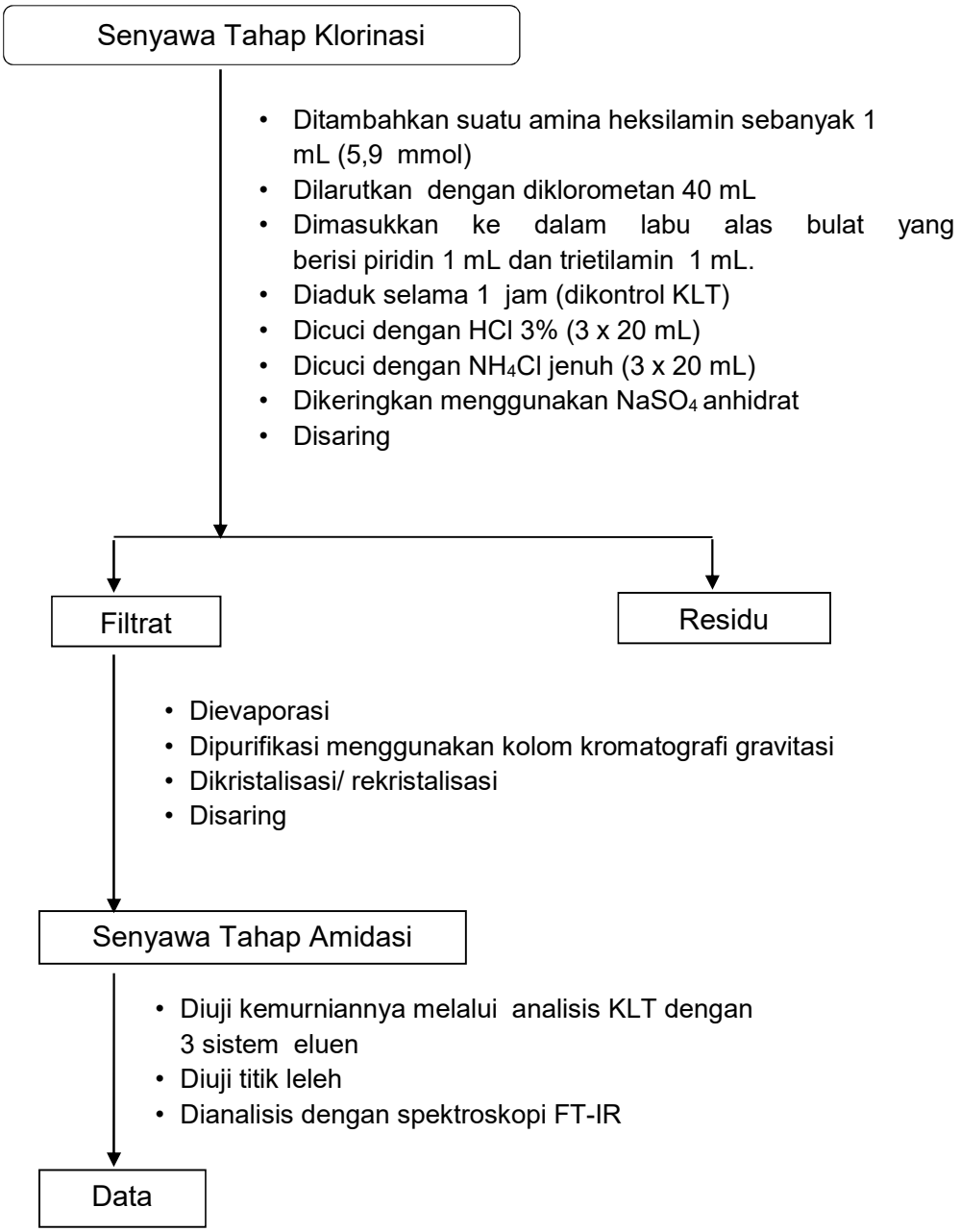
A. Prosedur Asetilasi



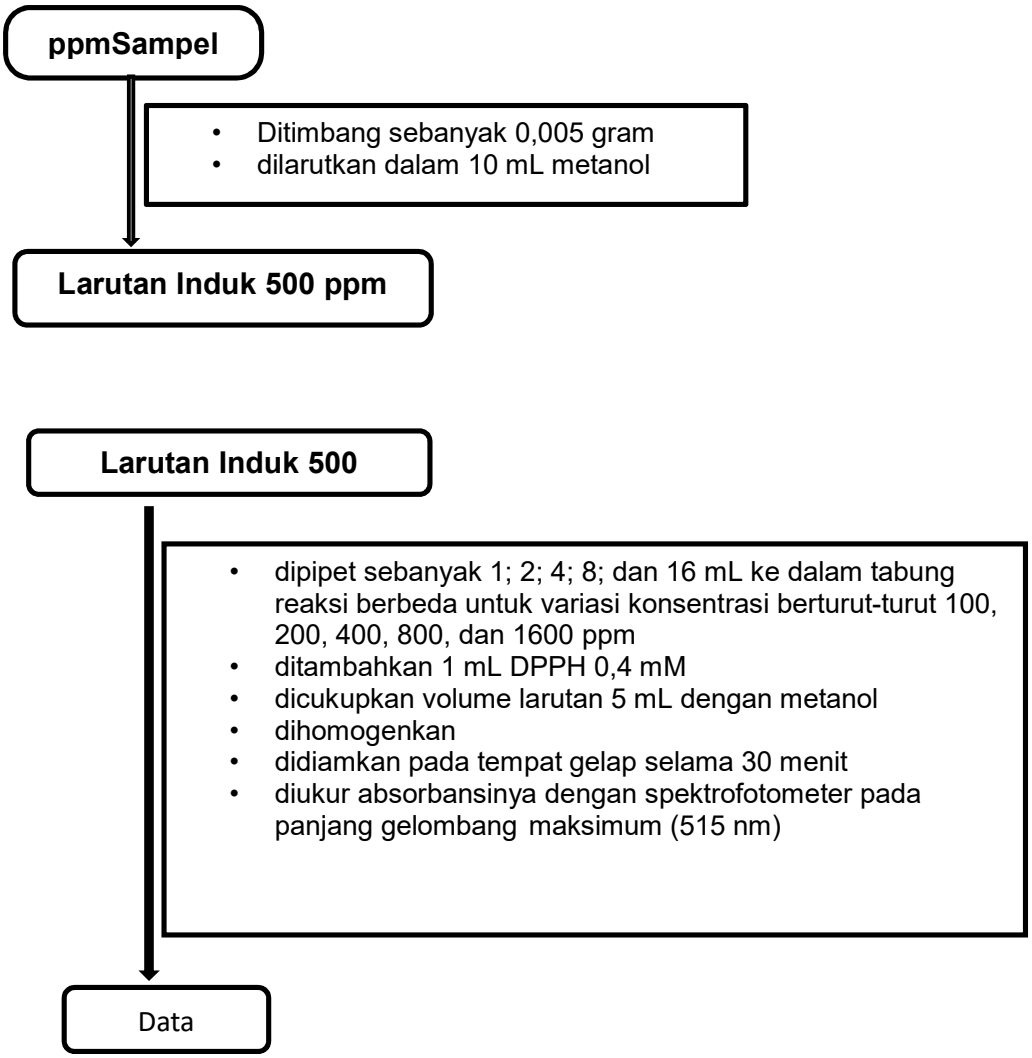
B. Prosedur Klorinasi



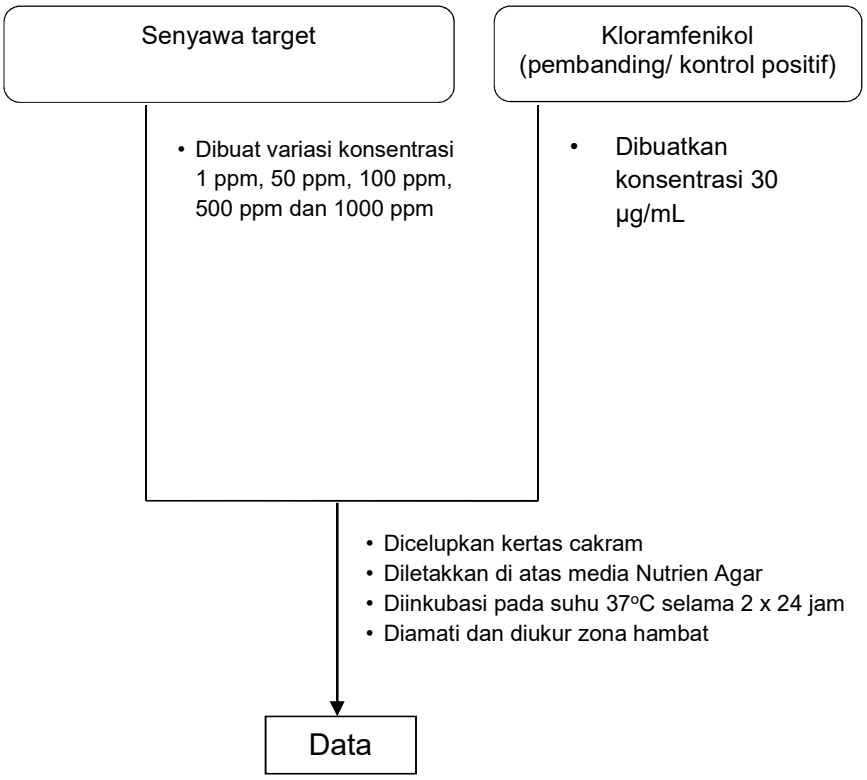
C. Prosedur Amidasi



D. Uji Bioaktivitas sebagai Antioksidan



E. Uji bioaktivitas antibakteri



Lampiran 2. Perhitungan Reaktan

1. Sintesis Senyawa asam 3-(4-asetoksifenil)akrilat

1.1 Asam *p*-kumarat

$$\text{mol asam } p\text{-kumarat} = \frac{\text{massa asam } p\text{-kumarat}}{\text{Mr asam } p\text{-kumarat}}$$

$$= \frac{1{,}00 \text{ g}}{164{,}16 \text{ g/mol}}$$

$$= 0{,}006 \text{ mol}$$

$$= 6{,}0 \text{ mmol}$$

1.2 Anhidrida Asetat

mol anhidrida asetat = 3 kali mol asam *p*-kumarat

= 3 x 0,006 mol

= 0,018 mol

= 18 mmol

massa anhidrida asetat = mol anhidrida asetat x Mr anhidrida asetat

= 0,018 mol x 102,09 g/mol

= 1,84 g

$$\text{volume anhidrida asetat} = \frac{\text{massa anhidrida asetat}}{\rho \text{ anhidrida asetat}}$$

$$= \frac{1{,}84 \text{ g}}{1{,}082 \text{ g/mL}}$$

$$= 1{,}7 \text{ mL}$$

2. Sintesis Senyawa 4-(3-chloro-3-oxopropenyl)phenyl acetate

2.1 Hasil Senyawa 4-(3-chloro-3-oxopropenyl)phenyl acetate

$$\text{mol senyawa} = \frac{\text{massa senyawa } \mathbf{1}}{\text{Mr senyawa } \mathbf{1}}$$

$$= \frac{1{,}0846 \text{ g}}{206{,}20 \text{ g/mol}}$$

$$= 0{,}005 \text{ mol}$$

= 5 mmol

2.2 Tionil Klorida

mol tionil klorida = 5 x mol senyawa **1**

= 5 x 0,005 mol

= 0,025 mol

= 25 mmol

massa tionil klorida = mol tionil klorida x Mr tionil klorida

= 0,005 mol x 118,97 g/mol

= 2,9743 g

volume tionil klorida $= \frac{\text{massa tionil klorida}}{\text{densitas tionil klorida}}$

$= \frac{2{,}9743\ \text{g}}{1{,}678\ \text{g/mL}}$

= 1,7 mL

3. Sintesis Senyawa 4-(3-hexylamine-3-oxopropenyl)phenyl acetate

3.1 Heksilamin

mol heksilamin = 1,1 x mol senyawa 4-(3-hexylamine-3-oxopropenyl)phenyl acetate

= 1,1 x 0,005 mol

= 0,0055 mol

= 5,5 mmol

massa heksilamin = n butilamin x Mr heksilamin

= 0,0055 mol x 289 g/mol

= 1,5895 g

volume heksilamin $= \frac{\text{massa heksilamin}}{\text{densitas heksilamin}}$

$= \frac{1{,}5895\ \text{g}}{0{,}77\ \text{g/mL}}$

= 2,1 mL

3.2 Piridin

mol piridin = 0,25 x mol senyawa **1**

= 0,25 x 0,005 mol

= 0,00125 mol

= 0,1 mmol

massa piridin = 0,00125 mol x 79,1 g/mol

= 0,09888 g

volume piridin $= \frac{\text{massa piridin}}{\text{densitas piridin}}$

$= \frac{0{,}09888 \text{ g}}{0{,}9819 \text{ g/mL}}$

= 0,100 mL

3.3 Trietilamin

mol trietilamin = 0,8 x mol senyawa **1**

= 0,8 x 0,005 mol

= 0,004 mol

massa trietilamin = 0,004 mol x 101,19 g/mol

= 0,4048 g

volume trietilamin $= \frac{\text{massa trietilamin}}{\text{densitas trietilamin}}$

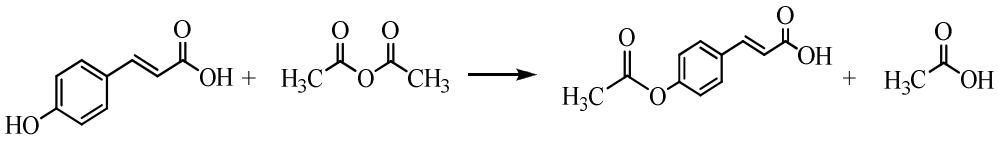
$= \frac{0{,}4048 \text{ g g}}{0{,}7255 \text{ g/mL}}$

= 0,6 mL

Perhitungan rendemen

A. Perhitungan Rendemen 3-(4-acetoxyphenyl)acrylic acid

a. Sintesis senyawa 3-(4-acetoxyphenyl)acrylic acid

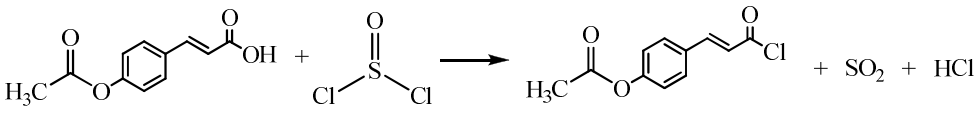
b. 

6,0 mmol 18,0 mmol 6,0 mmol

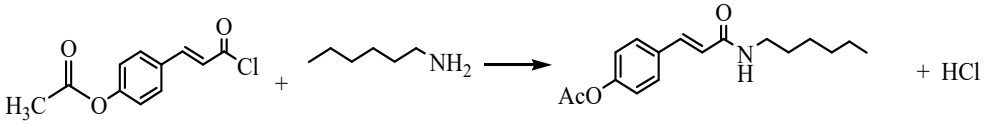
Bobot teoritis = mol produk x Mr produk
= 0,006 mol x 206 g/mol
= 1,236 g

Rendemen = $\frac{\text{bobot praktek}}{\text{bobot teoritis}}$ x 100%
= $\frac{1,0846}{1,236}$ x 100%
= 87,75%

c. Sintesis senyawa *4-(3-hexylamine-3-oxopropenyl)phenyl acetate*



3,4 mmol 17 mmol 3,4 mmol



3,4 mmol 3,7 mmol 3,4 mmol

Bobot teoritis = mol produk x Mr produk
= 0,0034 mol x 261 g/mol
= 0,887 g

$$\text{Rendemen} = \frac{\text{bobot praktek}}{\text{bobot teoritis}} \times 100\%$$

$$= \frac{0{,}1527}{0{,}887} \times 100\%$$

$$= 15{,}59\%$$

Lampiran 3. Kriteria rendamen reaksi

Persentase(%)	Kriteria
100	kuantitatif
>90	hebat
>80	Sangat baik
>70	Baik
>50	Cukup baik
>40	buruk

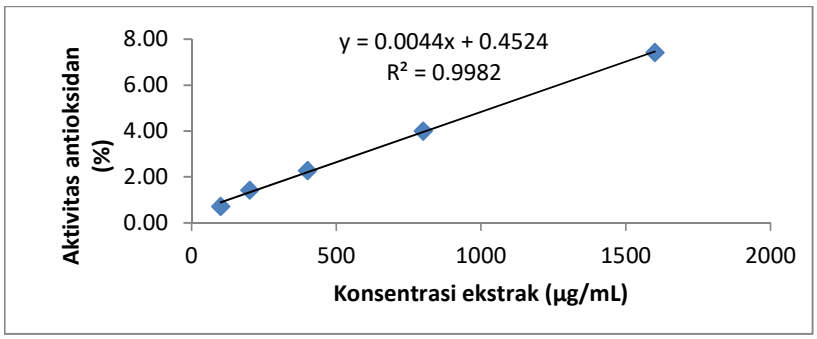
(Vogel et al., A.I., 1996)

Lampiran 4. Data Hasil Pengukuran Aktivitas Antioksidan senyawa 4-(3-hexylamine-3-oxopropenyl)phenyl acetate

1. SIMPLO

No	Konsentrasi (µg/mL)	Absorbansi (A) λ = 515 nm	Aktivitas Antioksidan (%)
1	100	0.695	0.71
2	200	0.690	1.43
3	400	0.684	2.29
4	800	0.672	4.00
5	1600	0.648	7.43
6	kontrol	0.700	

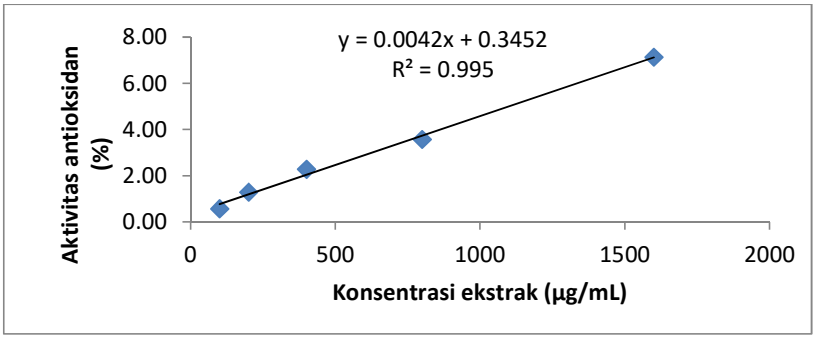
No	Konsentrasi (µg/mL)	Aktivitas Antioksidan (%)	Nilai IC-50 (µg/mL)
1	100	0.71	11260.8182
2	200	1.43	
3	400	2.29	
4	800	4.00	
5	1600	7.43	



2. DUPLO

No	Konsentrasi (µg/mL)	Absorbansi (A) λ = 515 nm	Aktivitas Antioksidan (%)
1	100	0.696	0.57
2	200	0.691	1.29
3	400	0.684	2.29
4	800	0.675	3.57
5	1600	0.650	7.14
6	kontrol	0.700	

No	Konsentrasi (µg/mL)	Aktivitas Antioksidan (%)	Nilai IC-50 (µg/mL)
1	100	0.57	11822.5714
2	200	1.29	
3	400	2.29	
4	800	3.57	
5	1600	7.14	



3. TRIPLO

No	Konsentrasi (µg/mL)	Absorbansi (A) λ = 515 nm	Aktivitas Antioksidan (%)
1	100	0.695	0.71
2	200	0.691	1.29
3	400	0.683	2.43
4	800	0.675	3.57
5	1600	0.648	7.43
6	kontrol	0.700	

No	Konsentrasi (µg/mL)	Aktivitas Antioksidan (%)	Nilai IC-50 (µg/mL)
1	100	0.71	11275.7045
2	200	1.29	
3	400	2.43	
4	800	3.57	
5	1600	7.43