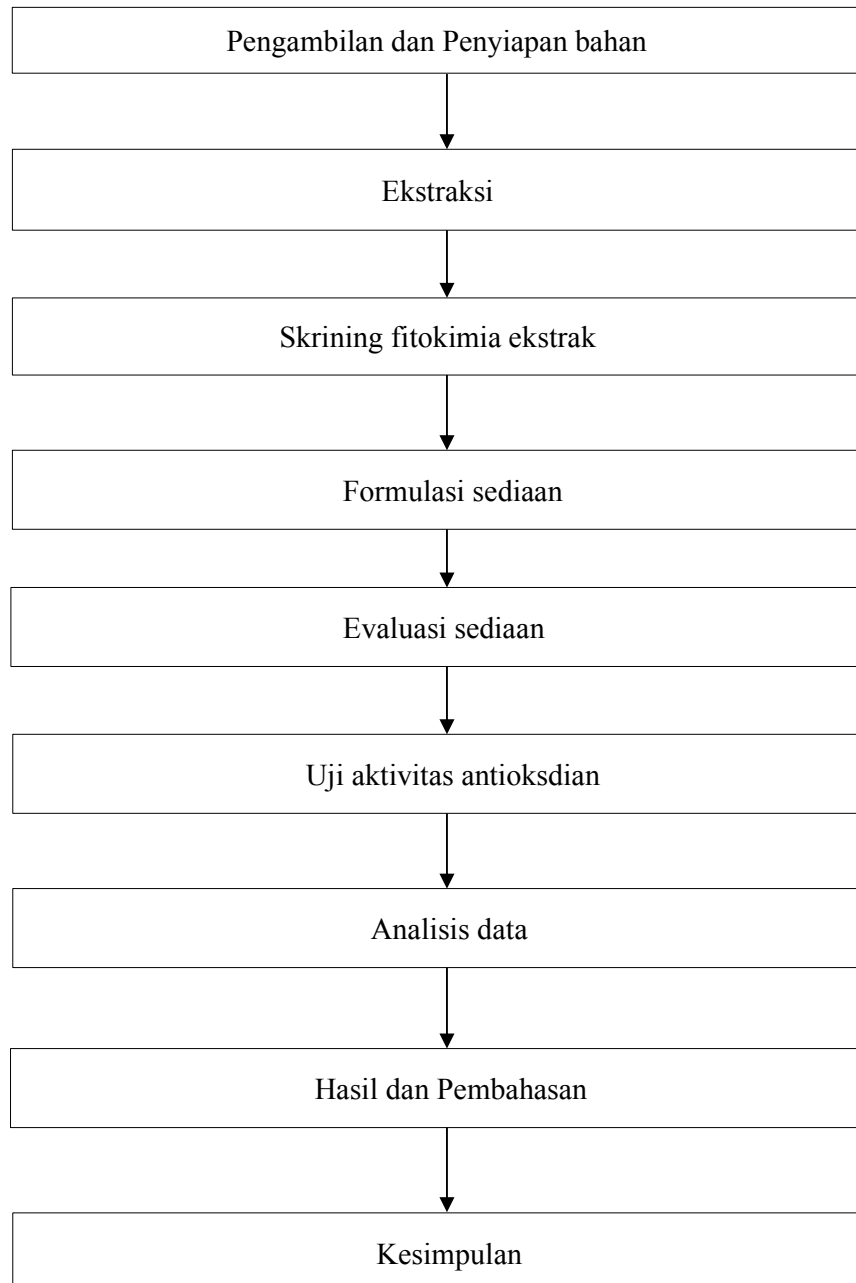


## LAMPIRAN

### Lampiran 1. Alur penelitian



**Lampiran 2 Proses pengolahan serbuk simplisia dan ekstrak daun kenikir  
(*Cosmos caudatus*)**

| Gambar                                                                              | Keterangan                                                    |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------|
|    | Pengumpulan sampel daun kenikir<br>( <i>Cosmos caudatus</i> ) |
|    | Proses pencucian daun kenikir<br>( <i>Cosmos caudatus</i> )   |
|   | Proses penjemuran daun kenikir<br>( <i>Cosmos caudatus</i> )  |
|  | Proses penghalusan daun kenikir<br>( <i>Cosmos caudatus</i> ) |
|  | Hasil serbuk halus daun kenikir<br>( <i>Cosmos caudatus</i> ) |

### Lampiran 3. Standarisasi mutu simplisia daun kenikir (*Cosmos caudatus*)

#### A. Susut pengeringan

| Gambar                                                                              | Keterangan                              |
|-------------------------------------------------------------------------------------|-----------------------------------------|
|    | Bobot cawan kosong                      |
|   | Bobot cawan + simplisia sebelum di oven |
|  | Bobot cawan + simplisia setelah dioven  |

## B. Kadar air

| Gambar                                                                              | Keterangan                             |
|-------------------------------------------------------------------------------------|----------------------------------------|
|    | Bobot cawan kosong                     |
|   | Bobot cawan+simplicia sebelum dioven   |
|  | Bobot cawan + simplicia sesudah dioven |

#### Lampiran 4. Perhitungan susut pengeringan

$$\begin{aligned}\text{Rumus: susut pengeringan} &= \frac{(B-A)-(C-A)}{(B-A)} \times 100\% \\ &= \frac{(59.6-57.6)-(59.4-57.6)}{(59.6-57.6)} \times 100\% = 10\%\end{aligned}$$

Keterangan: A = Berat cawan porselin kosong

B = Berat Cawan Porselin + Simplisia sebelum di oven

C = Berat Cawan porselin + Simplisia sesudah di oven

#### Lampiran 5. Perhitungan kadar air

$$\begin{aligned}\text{Rumus: kadar air} &= \frac{(A-B)}{C} \times 100\% \\ &= \frac{(61-60.5)}{5} \times 100\% = 10\%\end{aligned}$$

Keterangan: A = Berat Cawan + Sampel sebelum di Oven

B = Berat Cawan + Sampel setelah di Oven

C = Berat Sampel

#### Lampiran 6. Perhitungan rendemen ekstrak etanol daun kenikir

$$\begin{aligned}\% \text{Rendemen} &= \frac{\text{Berat ekstrak kental (g)}}{\text{Berat simplisia}} \times 100\% \\ &= \frac{30,6}{300} \times 100 \\ &= 10,2\%\end{aligned}$$

**Lampiran 7. Hasil pengujian skrining fitokimia**

| Gambar                                                                              | Keterangan                                                                |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
|    | Flavonoid positif warna merah bata                                        |
|    | Saponin positif (terbentuk busa stabil)                                   |
|   | Steroid positif (warna hijau kebiruan)                                    |
|  | Tanin : positif (warna hijau kehitaman)                                   |
|  | Alkaloid pereaksi (Mayer): positif (endapan putih)                        |
|  | Alkaloid pereaksi (Dragendorff): negatif (tidak ada endapan merah)        |
|  | Alkaloid pereaksi (Bouchardat): positif (Adanya endapan coklat kehitaman) |

## Lampiran 8. Perhitungan formulasi

### 1. Formula 0 (Basis)

|                      |                                                                                   |
|----------------------|-----------------------------------------------------------------------------------|
| Beras putih 10%      | $:\frac{10}{100} \times 50 = 5 \text{ gram}$                                      |
| Asam stearat 10%     | $:\frac{10}{100} \times 50 = 5 \text{ gram}$                                      |
| Setil alkohol 2%     | $:\frac{2}{100} \times 50 = 1 \text{ gram}$                                       |
| Propilenglikol 5%    | $:\frac{5}{100} \times 50 = 2,5 \text{ gram}$                                     |
| TEA 2%               | $:\frac{2}{100} \times 50 = 1 \text{ gram}$                                       |
| Metil paraben 0,3%   | $:\frac{0,3}{100} \times 50 = 0,15 \text{ gram}$                                  |
| Propil paraben 0,05% | $:\frac{0,05}{100} \times 50 = 0,025 \text{ gram}$                                |
| Oleum rosae          | $:\frac{0,2}{100} \times 50 = 0,1 \text{ gram}$                                   |
| Aquadest ad 50       | $: 50 - (5+5+1+2,5+1+0,15+0,025+0,1)$<br>$: 50 - 14,775$<br>$: 35,225 \text{ mL}$ |

### 2. Formula 1 (4%)

|                         |                                                    |
|-------------------------|----------------------------------------------------|
| Ekstrak daun kenikir 4% | $:\frac{4}{100} \times 50 = 2 \text{ gram}$        |
| Beras putih 10%         | $:\frac{10}{100} \times 50 = 5 \text{ gram}$       |
| Asam stearat 10%        | $:\frac{10}{100} \times 50 = 5 \text{ gram}$       |
| Setil alkohol 2%        | $:\frac{2}{100} \times 50 = 1 \text{ gram}$        |
| Propilenglikol 5%       | $:\frac{5}{100} \times 50 = 2,5 \text{ gram}$      |
| TEA 2%                  | $:\frac{2}{100} \times 50 = 1 \text{ gram}$        |
| Metil paraben 0,3%      | $:\frac{0,3}{100} \times 50 = 0,15 \text{ gram}$   |
| Propil paraben 0,05%    | $:\frac{0,05}{100} \times 50 = 0,025 \text{ gram}$ |
| Oleum rosae             | $:\frac{0,2}{100} \times 50 = 0,1 \text{ gram}$    |
| Aquadest ad 50          | $: 50 - (2+5+5+1+2,5+1+0,15+0,025+0,1)$            |

$$: 50 - 16,775$$

$$: 33,225 \text{ mL}$$

### 3. Formula 2 (6%)

$$\text{Ekstrak daun kenikir 6\%} : \frac{6}{100} \times 50 = 3 \text{ gram}$$

$$\text{Beras putih 10\%} : \frac{10}{100} \times 50 = 5 \text{ gram}$$

$$\text{Asam stearat 10\%} : \frac{10}{100} \times 50 = 5 \text{ gram}$$

$$\text{Setil alkohol 2\%} : \frac{2}{100} \times 50 = 1 \text{ gram}$$

$$\text{Propilenglikol 5\%} : \frac{5}{100} \times 50 = 2,5 \text{ gram}$$

$$\text{TEA 2\%} : \frac{2}{100} \times 50 = 1 \text{ g}$$

$$\text{Metil paraben 0,3\%} : \frac{0,3}{100} \times 50 = 0,15 \text{ g}$$

$$\text{Propil paraben 0,05\%} : \frac{0,05}{100} \times 50 = 0,025 \text{ g}$$

$$\text{Oleum rosae} : \frac{0,2}{100} \times 50 = 0,1 \text{ gram}$$

$$\text{Aquadest ad 50} : 50 - (3+5+5+1+2,5+1+0,15+0,025+0,1)$$

$$: 50 - 17,775$$

$$: 32,225 \text{ mL}$$

### 4. Formula 3 (8%)

$$\text{Ekstrak daun kenikir 8\%} : \frac{8}{100} \times 50 = 4 \text{ gram}$$

$$\text{Beras putih 10\%} : \frac{10}{100} \times 50 = 5 \text{ gram}$$

$$\text{Asam stearat 10\%} : \frac{10}{100} \times 50 = 5 \text{ gram}$$

$$\text{Setil alkohol 2\%} : \frac{2}{100} \times 50 = 1 \text{ gram}$$

$$\text{Propilenglikol 5\%} : \frac{5}{100} \times 50 = 2,5 \text{ gram}$$

$$\text{TEA 2\%} : \frac{2}{100} \times 50 = 1 \text{ g}$$

$$\text{Metil paraben 0,3\%} : \frac{0,3}{100} \times 50 = 0,15 \text{ gram}$$

$$\text{Propil paraben 0,05\%} : \frac{0,05}{100} \times 50 = 0,025 \text{ g}$$



Oleum rosae :  $\frac{0,2}{100} \times 50 = 0,1$  gram

Aquadest ad 50 :  $50 - (4+5+5+1+2,5+1+0,15+0,025+0,1)$

:  $50 - 18,775$

: 31,225 mL

### Lampiran 9. Proses pembuatan sediaan

| Gambar                                                                              | Keterangan                                   |
|-------------------------------------------------------------------------------------|----------------------------------------------|
|    | Penyiapan bahan pembuatan sediaan body scrub |
|  | Proses peleburan fase air dan fase minyak    |
|  | Proses penggerusan (Pencampuran semua bahan) |

|                                                                                   |                                  |
|-----------------------------------------------------------------------------------|----------------------------------|
|  | Tampak sediaan yang telah dibuat |
|-----------------------------------------------------------------------------------|----------------------------------|

#### Lampiran 10. Uji mutu fisik sediaan

| Gambar                                                                              | Keterangan       |
|-------------------------------------------------------------------------------------|------------------|
|   | Uji Organoleptis |
|  | Uji pH           |
|  | Uji Homogenitas  |

|                                                                                     |                |
|-------------------------------------------------------------------------------------|----------------|
|    | Uji viskositas |
|    | Uji daya sebar |
|  | Uji daya lekat |

### Lampiran 11. Uji antioksidan

| Gambar                                                                              | Keterangan     |
|-------------------------------------------------------------------------------------|----------------|
|  | Larutan sampel |

|                                                                                     |                                                                                   |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|    | <p>Sampel dipindahkan ditabung reaksi ditambahkan larutan DPPH dan metanol PA</p> |
|    | <p>Sampel yang siap diukur</p>                                                    |
|  | <p>Pengukuran absorbansi</p>                                                      |

## Lampiran 12. Perhitungan uji antioksidan

### A. Pengenceran konsntrasi sampel

1. Larutan induk dalam labu 5 ml

$$M_1.V_1 = M_2.V_2 \text{ (100 ppm)}$$

$$1000.V_1 = 100.5$$

$$V_1 = 500 \text{ 1000}$$

$$= 0,5 \text{ ml}$$

$$M_1.V_1 = M_2.V_2 \text{ (80 ppm)}$$

$$\begin{aligned}
 1000.V_1 &= 80.5 \\
 V_1 &= 400 \text{ } 1000 \\
 &= 0,4 \text{ ml} \\
 M_1.V_1 &= M_2.V_2 \text{ (60 ppm)} \\
 1000.V_1 &= 60.5 \\
 V_1 &= 300 \text{ } 1000 \\
 &= 0,3 \text{ ml} \\
 M_1.V_1 &= M_2.V_2 \text{ (40 ppm)} \\
 1000.V_1 &= 40.5 \\
 V_1 &= 200 \text{ } 1000 \\
 &= 0,2 \text{ ml}
 \end{aligned}$$

#### B. Pengenceran konsentrasi asam askorbat

##### 1. Larutan induk dalam labu 5 ml

$$\begin{aligned}
 M_1.V_1 &= M_2.V_2 \text{ (10 ppm)} \\
 100.V_1 &= 10.5 \\
 V_1 &= 50 \text{ } 100 \\
 &= 0,5 \text{ ml} \\
 M_1.V_1 &= M_2.V_2 \text{ (8 ppm)} \\
 100.V_1 &= 8.5 \\
 V_1 &= 40 \text{ } 100 \\
 &= 0,4 \text{ ml} \\
 M_1.V_1 &= M_2.V_2 \text{ (6 ppm)} \\
 100.V_1 &= 6.5 \\
 V_1 &= 30 \text{ } 100 \\
 &= 0,3 \text{ ml} \\
 M_1.V_1 &= M_2.V_2 \text{ (4 ppm)} \\
 100.V_1 &= 4.5 \\
 V_1 &= 20 \text{ } 100 \\
 &= 0,2 \text{ ml}
 \end{aligned}$$

### C. Perhitungan % inhibisi F0

#### 1. % Inhibisi 60 ppm

$$\begin{aligned} \text{a) Replikasi 1} &= \frac{0,889-0,811}{0,889} \times 100\% \\ &= 8,77\% \end{aligned}$$

$$\begin{aligned} \text{b) Replikasi 2} &= \frac{0,889-0,812}{0,889} \times 100\% \\ &= 8,66\% \end{aligned}$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,889-0,811}{0,889} \times 100\% \\ &= 8,77\% \end{aligned}$$

#### 2. % Inhibisi 40 ppm

$$\begin{aligned} \text{a) Replikasi 1} &= \frac{0,889-0,797}{0,889} \times 100\% \\ &= 10,34\% \end{aligned}$$

$$\begin{aligned} \text{b) Replikasi 2} &= \frac{0,889-0,797}{0,889} \times 100\% \\ &= 10,34\% \end{aligned}$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,889-0,797}{0,889} \times 100\% \\ &= 10,34\% \end{aligned}$$

#### 3. % Inhibisi 80 ppm

$$\begin{aligned} \text{a) Replikasi 1} &= \frac{0,889-0,784}{0,889} \times 100\% \\ &= 11,81\% \end{aligned}$$

$$\begin{aligned} \text{b) Replikasi 2} &= \frac{0,889-0,784}{0,889} \times 100\% \\ &= 11,81\% \end{aligned}$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,889-0,785}{0,889} \times 100\% \\ &= 11,69\% \end{aligned}$$

## 4. % Inhibisi 100 ppm

$$\text{a) Replikasi 1} = \frac{0,889-0,566}{0,889} \times 100\%$$

$$= 36,33\%$$

$$\text{b) Replikasi 2} = \frac{0,889-0,566}{0,889} \times 100\%$$

$$= 36,33\%$$

$$\text{c) Replikasi 3} = \frac{0,889-0,566}{0,889} \times 100\%$$

$$= 36,33\%$$

## D. Perhitungan % inhibisi F1

## 1. % Inhibisi 40 ppm

$$\text{a) Replikasi 1} = \frac{0,889-0,730}{0,889} \times 100\%$$

$$= 17,88\%$$

$$\text{b) Replikasi 2} = \frac{0,889-0,731}{0,889} \times 100\%$$

$$= 17,77\%$$

$$\text{c) Replikasi 3} = \frac{0,889-0,730}{0,889} \times 100\%$$

$$= 17,88\%$$

## 2. % Inhibisi 60 ppm

$$\text{a) Replikasi 1} = \frac{0,889-0,676}{0,889} \times 100\%$$

$$= 23,95\%$$

$$\text{b) Replikasi 2} = \frac{0,889-0,677}{0,889} \times 100\%$$

$$= 23,84\%$$

$$\text{c) Replikasi 3} = \frac{0,889-0,677}{0,889} \times 100\%$$

$$= 23,84\%$$

## 3. % Inhibisi 80 ppm

$$\text{a) Replikasi 1} = \frac{0,889-0,649}{0,889} \times 100\%$$

$$= 26,99\%$$

$$\text{b) Replikasi 2} = \frac{0,889-0,649}{0,889} \times 100\%$$

$$= 26,99\%$$

$$\begin{aligned}\text{c) Replikasi 3} &= \frac{0,889-0,649}{0,889} \times 100\% \\ &= 26,99\%\end{aligned}$$

4. % Inhibisi 100 ppm

$$\begin{aligned}\text{a) Replikasi 1} &= \frac{0,889-0,526}{0,889} \times 100\% \\ &= 40,83\%\end{aligned}$$

$$\begin{aligned}\text{b) Replikasi 2} &= \frac{0,889-0,527}{0,889} \times 100\% \\ &= 40,71\%\end{aligned}$$

$$\begin{aligned}\text{c) Replikasi 3} &= \frac{0,889-0,527}{0,889} \times 100\% \\ &= 40,71\%\end{aligned}$$

E. Perhitungan % inhibisi F2

1. % Inhibisi 40 ppm

$$\begin{aligned}\text{a) Replikasi 1} &= \frac{0,889-0,640}{0,889} \times 100\% \\ &= 28,00\%\end{aligned}$$

$$\begin{aligned}\text{b) Replikasi 2} &= \frac{0,889-0,639}{0,889} \times 100\% \\ &= 28,12\%\end{aligned}$$

$$\begin{aligned}\text{c) Replikasi 3} &= \frac{0,889-0,640}{0,889} \times 100\% \\ &= 28,00\%\end{aligned}$$

2. % Inhibisi 60 ppm

$$\begin{aligned}\text{a) Replikasi 1} &= \frac{0,889-0,582}{0,889} \times 100\% \\ &= 34,53\%\end{aligned}$$

$$\begin{aligned}\text{b) Replikasi 2} &= \frac{0,889-0,581}{0,889} \times 100\% \\ &= 34,64\%\end{aligned}$$

$$\begin{aligned}\text{c) Replikasi 3} &= \frac{0,889-0,580}{0,889} \times 100\% \\ &= 34,75\%\end{aligned}$$

3. % Inhibisi 80 ppm

$$\begin{aligned}\text{a) Replikasi 1} &= \frac{0,889-0,479}{0,889} \times 100\% \\ &= 46,11\%\end{aligned}$$



$$\begin{aligned} \text{b) Replikasi 2} &= \frac{0,889-0,480}{0,889} \times 100\% \\ &= 46,00\% \end{aligned}$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,889-0,479}{0,889} \times 100\% \\ &= 46,11\% \end{aligned}$$

4. % Inhibisi 100 ppm

$$\begin{aligned} \text{a) Replikasi 1} &= \frac{0,889-0,379}{0,889} \times 100\% \\ &= 57,93\% \end{aligned}$$

$$\begin{aligned} \text{b) Replikasi 2} &= \frac{0,889-0,374}{0,889} \times 100\% \\ &= 57,93\% \end{aligned}$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,889-0,376}{0,889} \times 100\% \\ &= 57,70\% \end{aligned}$$

F. Perhitungan % inhibisi F3

1. % Inhibisi 40 ppm

$$\begin{aligned} \text{a) Replikasi 1} &= \frac{0,889-0,606}{0,889} \times 100\% \\ &= 31,83\% \end{aligned}$$

$$\begin{aligned} \text{b) Replikasi 2} &= \frac{0,889-0,605}{0,889} \times 100\% \\ &= 31,94\% \end{aligned}$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,889-0,605}{0,889} \times 100\% \\ &= 31,94\% \end{aligned}$$

2. % Inhibisi 60 ppm

$$\begin{aligned} \text{a) Replikasi 1} &= \frac{0,889-0,443}{0,889} \times 100\% \\ &= 50,16\% \end{aligned}$$

$$\begin{aligned} \text{b) Replikasi 2} &= \frac{0,889-0,445}{0,889} \times 100\% \\ &= 49,94\% \end{aligned}$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,889-0,446}{0,889} \times 100\% \\ &= 49,83\% \end{aligned}$$

## 3. % Inhibisi 80 ppm

$$\begin{aligned} \text{a) Replikasi 1} &= \frac{0,889-0,384}{0,889} \times 100\% \\ &= 56,80\% \end{aligned}$$

$$\begin{aligned} \text{b) Replikasi 2} &= \frac{0,889-0,383}{0,889} \times 100\% \\ &= 56,91\% \end{aligned}$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,889-0,383}{0,889} \times 100\% \\ &= 56,91\% \end{aligned}$$

## 4. % Inhibisi 100 ppm

$$\begin{aligned} \text{a) Replikasi 1} &= \frac{0,889-0,192}{0,889} \times 100\% \\ &= 78,40 \end{aligned}$$

$$\begin{aligned} \text{b) Replikasi 2} &= \frac{0,889-0,192}{0,889} \times 100\% \\ &= 78,40 \end{aligned}$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,889-0,191}{0,889} \times 100\% \\ &= 78,51\% \end{aligned}$$

## G. Perhitungan % inhibisi Vit C

## 1. % Inhibisi 4 ppm

$$\begin{aligned} \text{a) Replikasi 1} &= \frac{0,692-0,451}{0,692} \times 100\% \\ &= 34,82\% \end{aligned}$$

$$\begin{aligned} \text{b) Replikasi 2} &= \frac{0,692-0,450}{0,692} \times 100\% \\ &= 34,97\% \end{aligned}$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,692-0,450}{0,692} \times 100\% \\ &= 34,97\% \end{aligned}$$

## 2. % Inhibisi 6 ppm

$$\begin{aligned} \text{a) Replikasi 1} &= \frac{0,692-0,469}{0,692} \times 100\% \\ &= 32,22\% \end{aligned}$$

$$\text{b) Replikasi 2} = \frac{0,692-0,470}{0,692} \times 100\%$$

$$= 32,08\%$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,692-0,470}{0,692} \times 100\% \\ &= 32,08\% \end{aligned}$$

### 3. % Inhibisi 8 ppm

$$\begin{aligned} \text{a) Replikasi 1} &= \frac{0,692-0,430}{0,692} \times 100\% \\ &= 37,86\% \end{aligned}$$

$$\begin{aligned} \text{b) Replikasi 2} &= \frac{0,692-0,438}{0,692} \times 100\% \\ &= 36,70\% \end{aligned}$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,692-0,438}{0,692} \times 100\% \\ &= 36,70\% \end{aligned}$$

### 4. % Inhibisi 10 ppm

$$\begin{aligned} \text{a) Replikasi 1} &= \frac{0,692-0,354}{0,692} \times 100\% \\ &= 48,84\% \end{aligned}$$

$$\begin{aligned} \text{b) Replikasi 2} &= \frac{0,692-0,353}{0,692} \times 100\% \\ &= 48,98\% \end{aligned}$$

$$\begin{aligned} \text{c) Replikasi 3} &= \frac{0,692-0,354}{0,692} \times 100\% \\ &= 48,84\% \end{aligned}$$

## H. Perhitungan nilai IC<sub>50</sub>

### 1. Formula F

$$\begin{aligned} y &= 0,405x-11,559 \\ x &= \frac{(50-a)}{b} \\ &= \frac{(50+11,559)}{0,405} \\ &= 151,99 \end{aligned}$$

### 2. Formula F1

$$\begin{aligned} y &= 0,3592x+2,2225 \\ x &= \frac{(50-a)}{b} \\ &= \frac{(50-2,2225)}{0,3592} \end{aligned}$$

$$=133,01$$

### 3. Formula F2

$$y = 0,5045x + 6,3383$$

$$\begin{aligned} x &= \frac{(50-a)}{b} \\ &= \frac{(50-6,3383)}{0,5045} \\ &= 86,54 \end{aligned}$$

### 4. Formula F3

$$y = 0,7325x + 3,0234$$

$$\begin{aligned} x &= \frac{(50-a)}{b} \\ &= \frac{(50-3,0234)}{0,7325} \\ &= 64,13 \end{aligned}$$

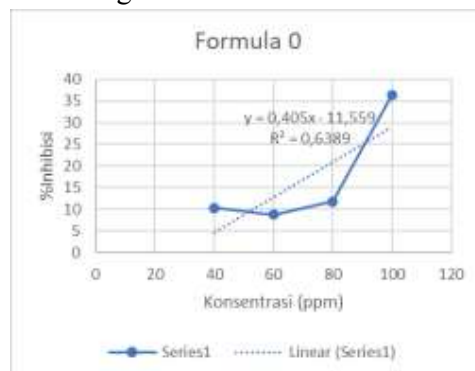
### 5. Vit C

$$y = 2,3429x + 21,854$$

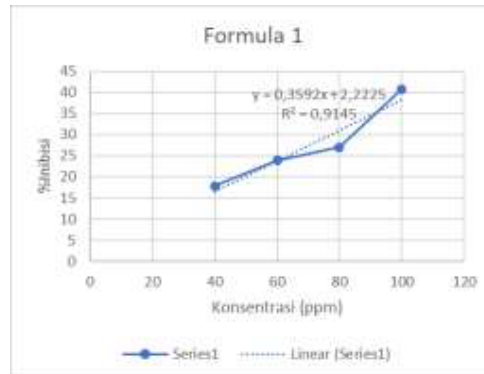
$$\begin{aligned} x &= \frac{(50-a)}{b} \\ &= \frac{(50-21,854)}{2,3429} \\ &= 12,01 \end{aligned}$$

## Lampiran 13. Kurva regresi linear

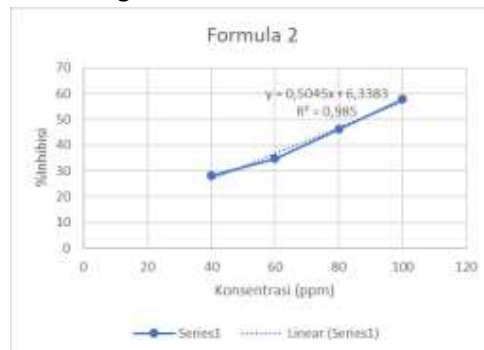
### A. Kurva regresi linear F0



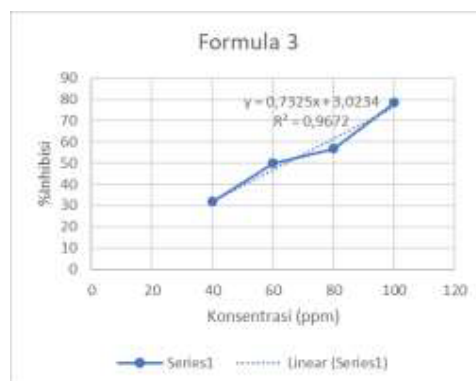
## B. Kurva regresi linear F1



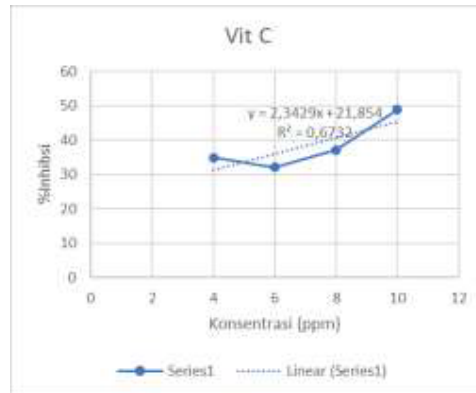
## C. Kurva regresi linear F2



## D. Kurva regresi linear F3



## E. Kurva regresi linear Vit C



## Lampiran 14. Master data

| No | Formula | Replikasi | IC50 (ppm) |
|----|---------|-----------|------------|
| 1  | F0      | 1         | 152,11     |
| 2  | F0      | 2         | 152,91     |
| 3  | F0      | 3         | 151,89     |
| 4  | F0      | 1         | 152,11     |
| 5  | F0      | 2         | 152,91     |
| 6  | F0      | 3         | 151,89     |
| 7  | F0      | 1         | 152,11     |
| 8  | F0      | 2         | 152,91     |
| 9  | F0      | 3         | 151,89     |
| 10 | F0      | 1         | 152,11     |
| 11 | F0      | 2         | 152,91     |
| 12 | F0      | 3         | 151,89     |
| 13 | F1      | 1         | 133,21     |
| 14 | F1      | 2         | 132,82     |
| 15 | F1      | 3         | 133,21     |
| 16 | F1      | 1         | 133,21     |
| 17 | F1      | 2         | 132,82     |
| 18 | F1      | 3         | 133,21     |
| 19 | F1      | 1         | 133,21     |
| 20 | F1      | 2         | 132,82     |
| 21 | F1      | 3         | 133,21     |
| 22 | F1      | 1         | 133,21     |
| 23 | F1      | 2         | 132,82     |
| 24 | F1      | 3         | 133,21     |
| 25 | F2      | 1         | 86,64      |
| 26 | F2      | 2         | 86,48      |
| 27 | F2      | 3         | 86,51      |

|    |       |   |       |
|----|-------|---|-------|
| 28 | F2    | 1 | 86,64 |
| 29 | F2    | 2 | 86,48 |
| 30 | F2    | 3 | 86,51 |
| 31 | F2    | 1 | 86,64 |
| 32 | F2    | 2 | 86,48 |
| 33 | F2    | 3 | 86,51 |
| 34 | F2    | 1 | 86,64 |
| 35 | F2    | 2 | 86,48 |
| 36 | F2    | 3 | 86,51 |
| 37 | F3    | 1 | 64,15 |
| 38 | F3    | 2 | 64,12 |
| 39 | F3    | 3 | 64,12 |
| 40 | F3    | 1 | 64,15 |
| 41 | F3    | 2 | 64,12 |
| 42 | F3    | 3 | 64,12 |
| 43 | F3    | 1 | 64,15 |
| 44 | F3    | 2 | 64,12 |
| 45 | F3    | 3 | 64,12 |
| 46 | F3    | 1 | 64,15 |
| 47 | F3    | 2 | 64,12 |
| 48 | F3    | 3 | 64,12 |
| 49 | Vit C | 1 | 12,12 |
| 50 | Vit C | 2 | 11,84 |
| 51 | Vit C | 3 | 12,06 |
| 52 | Vit C | 1 | 12,12 |
| 53 | Vit C | 2 | 11,84 |
| 54 | Vit C | 3 | 12,06 |
| 55 | Vit C | 1 | 12,12 |
| 56 | Vit C | 2 | 11,84 |
| 57 | Vit C | 3 | 12,06 |
| 58 | Vit C | 1 | 12,12 |
| 59 | Vit C | 2 | 11,84 |
| 60 | Vit C | 3 | 12,06 |

**Lampiran 15. Hasil analisis Uji normalitas Aktivitas Antioksidan Sediaan Body Scrub Daun Kenikir**

**Tests of Normality**

|             | Formula | Statistic | Shapiro-Wilk |       |
|-------------|---------|-----------|--------------|-------|
|             |         |           | df           | Sig.  |
| Antioksidan | Vit C   | .878      | 3            | .317  |
|             | F0      | .818      | 3            | .157  |
|             | F1      | .750      | 3            | <.001 |
|             | F2      | .885      | 3            | .339  |
|             | F3      | .750      | 3            | <.001 |

a. Lilliefors Significance Correction

**Lampiran 16. Hasil analisis Uji Homogenitas Aktivitas Antioksidan Sediaan Body Scrub Daun Kenikir**

**Tests of Homogeneity of Variances**

|             |                                      | Levene Statistic | df1 | df2   | Sig. |
|-------------|--------------------------------------|------------------|-----|-------|------|
|             |                                      |                  |     |       |      |
| Antioksidan | Based on Mean                        | 4.537            | 4   | 10    | .024 |
|             | Based on Median                      | .385             | 4   | 10    | .815 |
|             | Based on Median and with adjusted df | .385             | 4   | 4.988 | .812 |
|             | Based on trimmed mean                | 3.734            | 4   | 10    | .041 |

**Lampiran 17. Hasil Analisis Uji Kruskal-Wallis Aktivitas Antioksidan Sediaan Body Scrub daun kenikir**

**Ranks**

|             | Formula | N  | Mean Rank |
|-------------|---------|----|-----------|
| Antioksidan | Vit C   | 3  | 2.00      |
|             | F0      | 3  | 14.00     |
|             | F1      | 3  | 11.00     |
|             | F2      | 3  | 8.00      |
|             | F3      | 3  | 5.00      |
|             | Total   | 15 |           |

**Test Statistics<sup>a,b</sup>**

| Antioksidan      |        |
|------------------|--------|
| Kruskal-Wallis H | 13.548 |
| df               | 4      |
| Asymp. Sig.      | .009   |

a. Kruskal Wallis Test

b. Grouping Variable:  
Formula



# Lampiran 18. Hasil Analisis Uji LSD

## Multiple Comparisons

Dependent Variable: Antioksidan

LSD

| (I) Formula | (J) Formula | Mean<br>Difference (I-J) | Std. Error | Sig.  | 95% Confidence Interval |             |
|-------------|-------------|--------------------------|------------|-------|-------------------------|-------------|
|             |             |                          |            |       | Lower Bound             | Upper Bound |
| Vit C       | F0          | -139.92333 <sup>*</sup>  | .11887     | <,001 | -140.1882               | -139.6585   |
|             | F1          | -121.03333 <sup>*</sup>  | .11887     | <,001 | -121.2982               | -120.7685   |
|             | F2          | -74.49667 <sup>*</sup>   | .11887     | <,001 | -74.7615                | -74.2318    |
|             | F3          | -52.08333 <sup>*</sup>   | .11887     | <,001 | -52.3482                | -51.8185    |
| F0          | Vit C       | 139.92333 <sup>*</sup>   | .11887     | <,001 | 139.6585                | 140.1882    |
|             | F1          | 18.89000 <sup>*</sup>    | .11887     | <,001 | 18.6252                 | 19.1548     |
|             | F2          | 65.42667 <sup>*</sup>    | .11887     | <,001 | 65.1618                 | 65.6915     |
|             | F3          | 87.84000 <sup>*</sup>    | .11887     | <,001 | 87.5752                 | 88.1048     |
| F1          | Vit C       | 121.03333 <sup>*</sup>   | .11887     | <,001 | 120.7685                | 121.2982    |
|             | F0          | -18.89000 <sup>*</sup>   | .11887     | <,001 | -19.1548                | -18.6252    |
|             | F2          | 46.53667 <sup>*</sup>    | .11887     | <,001 | 46.2718                 | 46.8015     |
|             | F3          | 68.95000 <sup>*</sup>    | .11887     | <,001 | 68.6852                 | 69.2148     |
| F2          | Vit C       | 74.49667 <sup>*</sup>    | .11887     | <,001 | 74.2318                 | 74.7615     |
|             | F0          | -65.42667 <sup>*</sup>   | .11887     | <,001 | -65.6915                | -65.1618    |
|             | F1          | -46.53667 <sup>*</sup>   | .11887     | <,001 | -46.8015                | -46.2718    |
|             | F3          | 22.41333 <sup>*</sup>    | .11887     | <,001 | 22.1485                 | 22.6782     |
| F3          | Vit C       | 52.08333 <sup>*</sup>    | .11887     | <,001 | 51.8185                 | 52.3482     |
|             | F0          | -87.84000 <sup>*</sup>   | .11887     | <,001 | -88.1048                | -87.5752    |
|             | F1          | -68.95000 <sup>*</sup>   | .11887     | <,001 | -69.2148                | -68.6852    |
|             | F2          | -22.41333 <sup>*</sup>   | .11887     | <,001 | -22.6782                | -22.1485    |

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

## Lampiran 19. Kode etik



## Lampiran 20. Surat Izin Penelitian



## Lampiran 21. Surat Keterangan Bebas Lab

**MAJELIS PENDIDIKAN TINGGI, PENELITIAN, DAN PENGEMBANGAN  
UNIVERSITAS MUHAMMADIYAH PALOPO  
FAKULTAS ILMU KESEHATAN  
PROGRAM STUDI FARMASI  
LABORATORIUM FARMASI**

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Website: <http://www.umpalopo.ac.id>

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**SURAT KETERANGAN**  
**NOMOR: 013KET/III.3.AU/LAB-FARM/F/2024**

Yang bertanda tangan dibawah ini :

Nama : apt. Waode Suiyarti., S.Si., M.Si  
Jabatan : Ketua Program Studi Farmasi

Menerangkan dengan sesungguhnya bahwa :

Nama : Leorina Amanda  
NIM : 221320114  
Judul : Formulasi dan uji aktivitas antioksidan sediaan body scrub ekstrak etanol daun kenikir (*cosmos caudatus*) dengan metode DPPH  
Jurusan/Prodi : Farmasi (S1)  
Perguruan Tinggi : Universitas Muhammadiyah Palopo

Telah menyelesaikan segala kewajiban terkait dengan peminjaman/penggunaan fasilitas Laboratorium selama yang bersangkutan melaksanakan kegiatan penelitian di lingkup laboratorium Farmasi Universitas Muhammadiyah Palopo, sehingga diberikan Surat Keterangan bebas Laboratorium ini.

Demikian Surat Keterangan ini diberikan untuk dipergunakan sebagaimana mestinya.

Palopo, 06 juni 2026

Ketua Program Studi Farmasi

  
 Apt. Waode Suiyarti., S.Si., M.Si  
 NIDN. 0904108703

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