

## LAMPIRAN

### Lampiran 1 Perhitungan preparasi larutan uji

#### 1.1 Pembuatan seduhan daun dan bunga cengkeh 1000 ppm

$$\text{Zat terlarut (mg)} = \text{konsentrasi (ppm)} \times \text{volume (L)}$$

$$\text{Zat terlarut (mg)} = 1000 \text{ ppm} \times 100 \text{ ml (0,1 L)}$$

$$\text{Zat terlarut} = 100 \text{ mg}$$

#### 1.2 Pembuatan larutan seri konsentrasi seduhan daun dan bunga cengkeh

$$\text{Rumus pengenceran: } M1 \times V1 = M2 \times V2$$

Keterangan: M1: konsentrasi larutan awal

V1: volume yang dibutuhkan

M2: konsentrasi yang diinginkan

V2: volume yang akan dibuat

$$\begin{aligned} \text{Konsentrasi 10 ppm: } & 1000 \text{ ppm} \times V1 = 10 \text{ ppm} \times 5 \text{ ml} \\ & 1000 \text{ ppm} \times V1 = 50 \end{aligned}$$

$$V1 = \frac{50}{1000 \text{ ppm}}$$

$$V1 = 0,05 \text{ ml ( } 50 \text{ }\mu\text{L)}$$

$$\begin{aligned} \text{Konsentrasi 20 ppm: } & 1000 \text{ ppm} \times V1 = 20 \text{ ppm} \times 5 \text{ ml} \\ & 1000 \text{ ppm} \times V1 = 100 \end{aligned}$$

$$V1 = \frac{100}{1000 \text{ ppm}}$$

$$V1 = 0,1 \text{ ml ( } 100 \text{ }\mu\text{L)}$$

$$\begin{aligned} \text{Konsentrasi 30 ppm: } & 1000 \text{ ppm} \times V1 = 30 \text{ ppm} \times 5 \text{ ml} \\ & 1000 \text{ ppm} \times V1 = 150 \end{aligned}$$

$$V1 = \frac{150}{1000 \text{ ppm}}$$

$$V1 = 0,15 \text{ ml ( } 150 \text{ }\mu\text{L)}$$

$$\begin{aligned} \text{Konsentrasi 40 ppm: } & 1000 \text{ ppm} \times V1 = 40 \text{ ppm} \times 5 \text{ ml} \\ & 1000 \text{ ppm} \times V1 = 200 \end{aligned}$$

$$V1 = \frac{200}{1000 \text{ ppm}}$$

$$V1 = 0,2 \text{ ml ( } 200 \text{ }\mu\text{L)}$$

$$\begin{aligned} \text{Konsentrasi 50 ppm: } & 1000 \text{ ppm} \times V1 = 50 \text{ ppm} \times 5 \text{ ml} \\ & 1000 \text{ ppm} \times V1 = 250 \end{aligned}$$

$$V1 = \frac{250}{1000 \text{ ppm}}$$

$$V1 = 0,25 \text{ ml ( } 250 \text{ }\mu\text{L)}$$

#### 1.3 Perhitungan pembuatan larutan DPPH 50 ppm

$$\text{Zat terlarut (mg)} = \text{konsentrasi (ppm)} \times \text{volume (L)}$$

Zat terlarut (mg) = 50 ppm x 100 ml (0,1 L)

Zat terlarut = 5 mg (0,005 gram)

## Lampiran 2 Perhitungan persen inhibisi daun cengkeh

$$\% \text{ Inhibisi: } \frac{\text{Absorbansi blanko} - \text{absorbansi sampel}}{\text{absorbansi blanko}} \times 100\%$$

Absorbansi Blanko = 0,578

### Replikasi 1

- Konsentrasi 10 ppm  
% Inhibisi :  $\frac{0,578-0,549}{0,578} \times 100\% = 5,0173\%$
- Konsentrasi 20 ppm  
% Inhibisi :  $\frac{0,578-0,487}{0,578} \times 100\% = 15,7439\%$
- Konsentrasi 30 ppm  
% Inhibisi :  $\frac{0,578-0,430}{0,578} \times 100\% = 25,6055\%$
- Konsentrasi 40 ppm  
% Inhibisi :  $\frac{0,578-0,326}{0,578} \times 100\% = 43,5986\%$
- Konsentrasi 50 ppm  
% Inhibisi :  $\frac{0,578-0,274}{0,578} \times 100\% = 52,5952\%$

### Replikasi 2

- Konsentrasi 10 ppm  
% Inhibisi :  $\frac{0,578-0,562}{0,578} \times 100\% = 2,7682\%$
- Konsentrasi 20 ppm  
% Inhibisi :  $\frac{0,578-0,512}{0,578} \times 100\% = 11,4187\%$
- Konsentrasi 30 ppm  
% Inhibisi :  $\frac{0,578-0,416}{0,578} \times 100\% = 28,0277\%$
- Konsentrasi 40 ppm  
% Inhibisi :  $\frac{0,578-0,319}{0,578} \times 100\% = 44,8097\%$
- Konsentrasi 50 ppm

$$\% \text{ Inhibisi} : \frac{0,578-0,291}{0,578} \times 100\% = 49,6540\%$$

### Replikasi 3

- Konsentrasi 10 ppm  
 $\% \text{ Inhibisi} : \frac{0,578-0,554}{0,578} \times 100\% = 4,1522\%$
- Konsentrasi 20 ppm  
 $\% \text{ Inhibisi} : \frac{0,578-0,472}{0,578} \times 100\% = 18,3391\%$
- Konsentrasi 30 ppm  
 $\% \text{ Inhibisi} : \frac{0,578-0,375}{0,578} \times 100\% = 35,1211\%$
- Konsentrasi 40 ppm  
 $\% \text{ Inhibisi} : \frac{0,578-0,315}{0,578} \times 100\% = 45,5017\%$
- Konsentrasi 50 ppm  
 $\% \text{ Inhibisi} : \frac{0,578-0,281}{0,578} \times 100\% = 51,3841\%$

### Lampiran 3 Perhitungan persen inhibisi Bunga Cengkeh

$$2.1.\% \text{ Inhibisi} : \frac{\text{Absorbansi blanko} - \text{absorbansi sampel}}{\text{absorbansi blanko}} \times 100\%$$

$$\text{Absorbansi Blanko} = 0,578$$

### Replikasi 1

- Konsentrasi 10 ppm  
 $\% \text{ Inhibisi} : \frac{0,578-0,499}{0,578} \times 100\% = 13,6678\%$
- Konsentrasi 20 ppm  
 $\% \text{ Inhibisi} : \frac{0,578-432}{0,578} \times 100\% = 25,2595\%$
- Konsentrasi 30 ppm  
 $\% \text{ Inhibisi} : \frac{0,578-0,364}{0,578} \times 100\% = 37,0242\%$
- Konsentrasi 40 ppm  
 $\% \text{ Inhibisi} : \frac{0,578-0,299}{0,578} \times 100\% = 48,2699\%$
- Konsentrasi 50 ppm

$$\% \text{ Inhibisi} : \frac{0,578-0,241}{0,578} \times 100\% = 58,3045\%$$

### Replikasi 2

- Konsentrasi 10 ppm

$$\% \text{ Inhibisi} : \frac{0,578-0,501}{0,578} \times 100\% = 13,3218\%$$

- Konsentrasi 20 ppm

$$\% \text{ Inhibisi} : \frac{0,578-0,454}{0,578} \times 100\% = 21,4533\%$$

- Konsentrasi 30 ppm

$$\% \text{ Inhibisi} : \frac{0,578-0,383}{0,578} \times 100\% = 33,7370\%$$

- Konsentrasi 40 ppm

$$\% \text{ Inhibisi} : \frac{0,578-0,285}{0,578} \times 100\% = 50,6920\%$$

- Konsentrasi 50 ppm

$$\% \text{ Inhibisi} : \frac{0,578-0,256}{0,578} \times 100\% = 55,7093\%$$

### Replikasi 3

- Konsentrasi 10 ppm

$$\% \text{ Inhibisi} : \frac{0,578-0,506}{0,578} \times 100\% = 12,4567\%$$

- Konsentrasi 20 ppm

$$\% \text{ Inhibisi} : \frac{0,578-0,448}{0,578} \times 100\% = 22,4913\%$$

- Konsentrasi 30 ppm

$$\% \text{ Inhibisi} : \frac{0,578-0,375}{0,578} \times 100\% = 35,1211\%$$

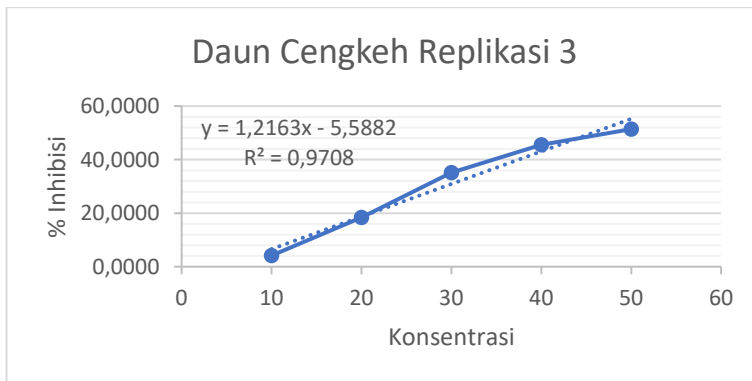
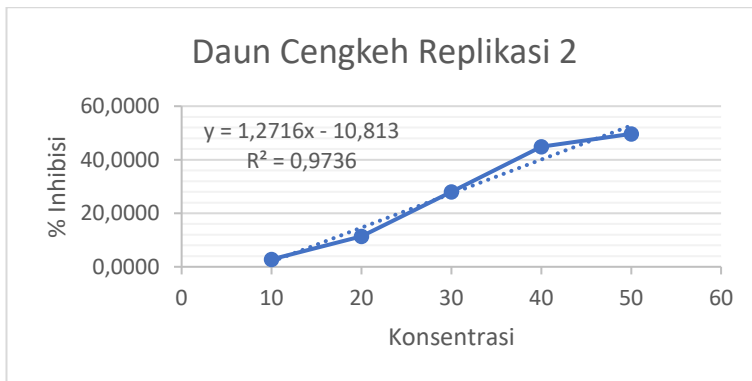
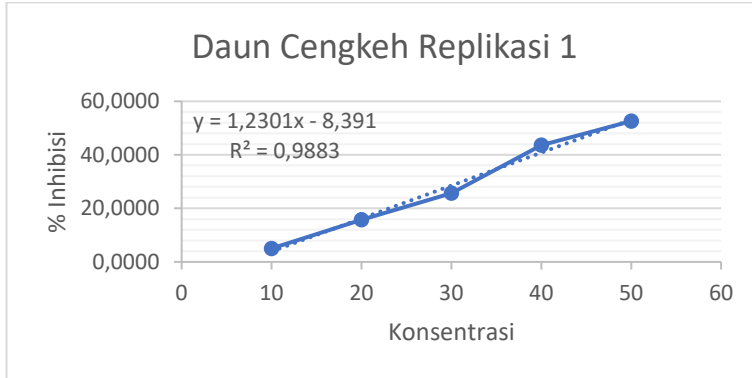
- Konsentrasi 40 ppm

$$\% \text{ Inhibisi} : \frac{0,578-0,294}{0,578} \times 100\% = 49,1349\%$$

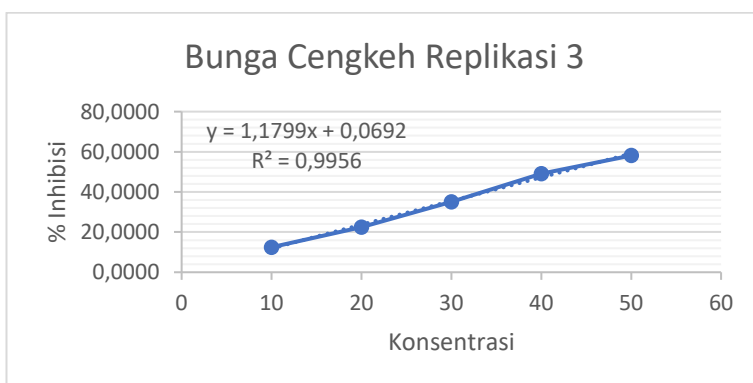
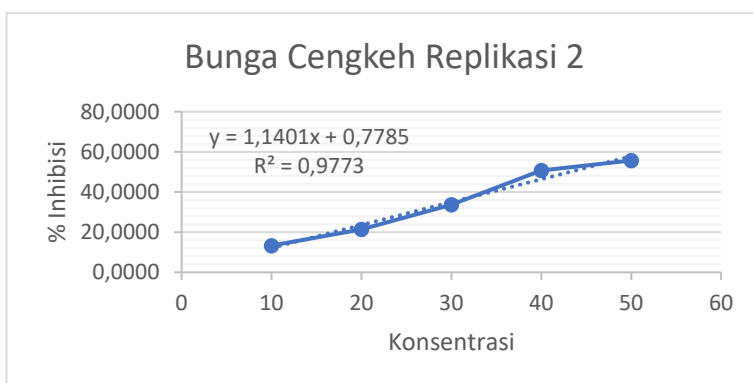
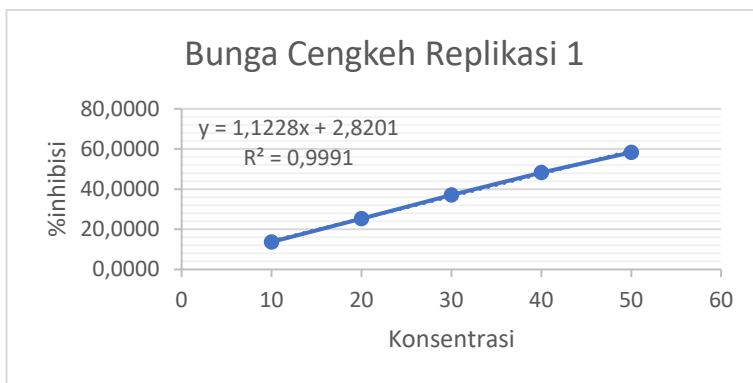
- Konsentrasi 50 ppm

$$\% \text{ Inhibisi} : \frac{0,578-0,242}{0,578} \times 100\% = 58,1315\%$$

#### Lampiran 4 Grafik persamaan seduhan daun cengkeh



#### Lampiran 5 Grafik persamaan seduhan bunga cengkeh



## Lampiran 6 Lampiran Perhitungan nilai IC<sub>50</sub>

### 1. Perhitungan nilai IC<sub>50</sub> seduhan daun cengkeh

Replikasi 1

$$y = 1,2301x - 8,391$$

$$50 = 1,2301x - 8,391$$

$$1,2301x = 50 + 8,391$$

$$x = \frac{58,391}{1,1301}$$

$$x = 47,4685 \mu\text{g/ml}$$

### Replikasi 2

$$y = 1,2716x - 10,813$$

$$50 = 1,2716x - 10,813$$

$$1,2716 x = 50 + 10,813$$

$$x = \frac{60,813}{1,2716}$$

$$x = 47,8240 \mu\text{g/ml}$$

### Replikasi 3

$$y = 1,2163x - 5,5882$$

$$50 = 1,2163x - 5,5882$$

$$1,2163 x = 50 + 5,5882$$

$$x = \frac{55,5882}{1,2163}$$

$$x = 45,7027 \mu\text{g/ml}$$

## 2. Perhitungan nilai IC<sub>50</sub> seduhan daun cengkeh

### Replikasi 1

$$y = 1,1228x + 2,8201$$

$$50 = 1,1228x + 2,8201$$

$$1,1228 x = 50 - 2,8201$$

$$x = \frac{47,1799}{1,1228}$$

$$x = 42,0199 \mu\text{g/ml}$$

### Replikasi 2

$$y = 1,1401x + 0,7785$$

$$50 = 1,1401x + 0,7785$$

$$1,1401 x = 50 - 0,7785$$

$$x = \frac{49,2215}{1,1401}$$

$$x = 43,1730 \mu\text{g/ml}$$

### Replikasi 3

$$y = 1,1799x + 0,0692$$

$$50 = 1,1799x + 0,0692$$

$$1,1799 x = 50 - 0,0692$$

$$x = \frac{49,9308}{1,1799}$$

$$x = 42,3178 \mu\text{g/ml}$$

### Lampiran 7 Perhitungan rata-rata nilai IC<sub>50</sub>

1. Rata-rata daun cengkeh =  $\frac{47,4685+47,8240+45,7027}{3} = 46,9984$
2. Rata-rata bunga cengkeh =  $\frac{42,0199 + 43,1730 + 42,3178}{3} = 42,5036$

### Lampiran 8 Perhitungan nilai AAI

$$\text{AAI} = \frac{\text{konsentrasi akhir DPPH } \mu\text{g/ml}}{\text{IC}_{50} \mu\text{g/ml}}$$

$$\text{Nilai AAI daun cengkeh} = \frac{25 \text{ ppm}}{46,9984 \text{ ppm}} = 0,53$$

$$\text{Nilai AAI bunga cengkeh} = \frac{25 \text{ ppm}}{42,5036 \text{ ppm}} = 0,59$$

Keterangan: konsentrasi akhir DPPH (konsentrasi DPPH yang ditambahkan pada larutan uji : konsentrasi sampel yaitu 1:1 yang berarti 25ppm)



**Lampiran 9 Data penilaian panelis hasil uji hedonik**

No	Nama Panelis	Daun Cengkeh				Bunga Cengkeh			
		Warna	Aroma	Rasa	Daya terima	Warna	Aroma	Rasa	Daya terima
1	Anita	3	4	4	4	5	4	3	4
2	Cherly	4	3	4	4	4	3	3	3
3	Melinda	2	3	4	3	4	3	4	4
4	Kayam	2	3	2	2	5	6	6	6
5	Tusya	2	3	3	3	4	5	3	4
6	Bawon	2	4	3	3	3	2	4	3
7	Sumarto	3	4	4	4	5	5	4	5
8	Intan	5	4	3	4	5	4	3	4
9	Dita	2	3	3	3	2	3	2	2
10	Silvi	6	5	2	4	5	3	2	3
11	Mila	4	3	3	3	4	2	2	3
12	Tasya	4	2	3	3	4	3	2	3
13	Alifa	5	5	4	5	5	5	4	5
14	Rizal	4	3	5	4	6	3	4	4
15	Berliana	4	4	3	4	4	3	2	3
16	Sifa	6	4	5	5	6	4	1	4
17	Jamila	4	3	3	3	4	2	3	3
18	Maqdziz	5	6	6	6	5	6	6	6
19	Rindi	3	1	2	2	3	2	4	3
20	Khoirun	2	2	2	2	2	2	1	2
21	Widya	4	4	2	3	5	5	2	4
22	Sumarmi	3	5	3	4	6	5	6	6
23	Suwandi	4	3	3	3	5	5	4	5
24	Aurel	3	4	2	3	4	4	2	3
25	Dewa	4	3	5	4	6	4	5	5
26	Wati	6	4	4	5	6	3	4	4
27	Saiful	2	3	2	2	4	4	3	4
28	Hasana	4	4	2	3	5	3	2	3
29	Yoyok	3	3	2	3	4	3	2	3
30	Lia	5	4	5	5	5	4	3	4
Jumlah Respon		110	106	98	105	135	110	96	114
Jumlah Panelis		30	30	30	30	30	30	30	30
Rata: $\frac{\text{Jumlah Respon}}{\text{Jumlah Panelis}}$		3,7	3,5	3,3	<b>3,5</b>	4,5	3,7	3,2	<b>3,8</b>

Keterangan: Skala uji hedonik: 6 (Amat sangat suka), 5 (Sangat suka), 4 (Suka), 3 (Cukup suka), 2 (Tidak suka), 1 (Sangat tidak suka)

## Lampiran 10 Foto dokumentasi

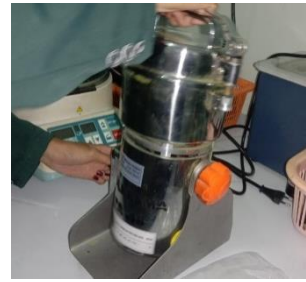
### 1. Pembuatan simplisia daun dan bunga cengkeh



Pengovenan sampel



Daun cengkeh setelah dioven



Pengrinderan



Serbuk daun cengkeh



Bunga cengkeh setelah dioven



Serbuk bunga cengkeh

### 2. Pembuatan seduhan daun dan bunga cengkeh



Penimbangan serbuk daun cengkeh



Penimbangan serbuk bunga cengkeh



Pendidihan air



Pengukuran air mendidih



Penyeduhan serbuk daun cengkeh



Pengadukan



Pengukuran air mendidih



Penyeduhan serbuk bunga cengkeh



Pengadukan



Didiamkan selama 10 menit

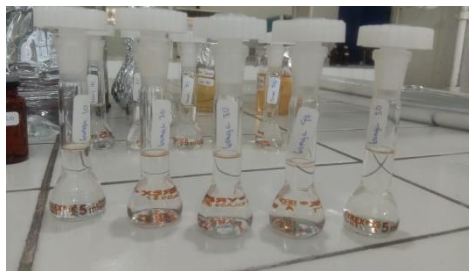


Penyaringan seduhan daun cengkeh



Penyaringan seduhan bunga cengkeh

**3. Larutan seri sampel seduhan daun dan bunga cengkeh 10, 20, 30, 40 dan 50 ppm**



Larutan seri seduhan daun cengkeh



Larutan seri seduhan bunga cengkeh

**4. Pembuatan larutan DPPH 50 ppm**



Penimbangan DPPH

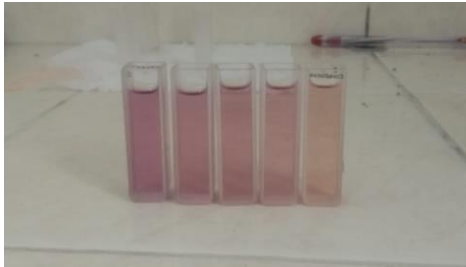


Melarutkan DPPH

## 5. Uji aktivitas antioksidan



Pembuatan larutan uji

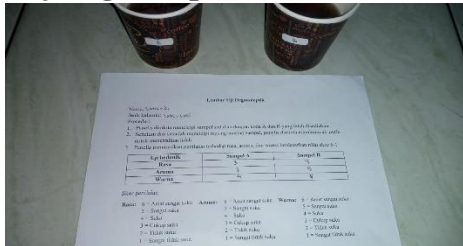


Larutan uji setelah inkubasi 30 menit



Pengukuran absorbansi larutan dengan spektrofotometer UV-Vis

## 6. Uji organoleptik



Instrument uji organoleptik



(a) Seduhan daun cengkeh  
(b) Seduhan bunga cengkeh

## Lampiran 11 Hasil uji statistika menggunakan SPSS

### 1. Analisis Data Dengan SPSS (Uji Independent Sampel T Test) Dua Sampel Tidak Saling Berhubungan

Tests of Normality							
Sampel	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk			Sig.
	Statistic	df	Sig.	Statistic	df	Sig.	
Nilai IC50	Daun Cengkeh	.327	3	.	.872	3	.300
	Bunga Cengkeh	.289	3	.	.928	3	.480

a. Lilliefors Significance Correction

**Keterangan:**  
 Nilai sig. > 0,05 artinya data berdistribusi normal

**T Test**

Group Statistics					
Sampel	N	Mean	Std. Deviation	Std. Error Mean	
Nilai IC50	Daun Cengkeh	3	46.998400	1.1361003	.6559278
	Bunga Cengkeh	3	42.503567	.5985748	.3455873

Independent Samples Test											
		Levene's Test for Equality of Variances		t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.			One-Sided p	Two-Sided p			Lower	Upper
Nilai IC50	Equal variances assumed	2.264	.207	6.063	4	.002	.004	4.4948333	.7413986	2.4363807	6.5532859
	Equal variances not assumed			6.063	3.031	.004	.009	4.4948333	.7413986	2.1489310	6.8407357

Independent Samples Effect Sizes					
	Standardizer <sup>a</sup>	Point Estimate	95% Confidence Interval		
			Lower	Upper	
Nilai IC50	Cohen's d	.9080242	4.950	1.272	8.579
	Hedges' correction	1.1380395	3.950	1.015	6.845
	Glass's delta	.5985748	7.509	.910	14.569

a. The denominator used in estimating the effect sizes.  
 Cohen's d uses the pooled standard deviation.  
 Hedges' correction uses the pooled standard deviation, plus a correction factor.  
 Glass's delta uses the sample standard deviation of the control (i.e., the second) group.

**Keterangan:**  
 Nilai sig. < 0,05 artinya terdapat perbedaan yang signifikan antara rata-rata nilai IC<sub>50</sub> daun cengkeh dan bunga cengkeh

### 2. Analisis Data Statistika Non Parametrik (Uji Mann Whitney) uji beda kelompok tidak berpasangan

Tests of Normality							
Sampel	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk			
	Statistic	df	Sig.	Statistic	df	Sig.	
Warna	Daun Cengkeh	.170	30	.026	.901	30	.009
	Bunga Cengkeh	.212	30	.001	.888	30	.004

a. Lilliefors Significance Correction

**Ket:** nilai sig. < 0,05 artinya data berdistribusi tidak normal

**Mann-Whitney Test**

### Ranks

	Sampel	N	Mean Rank	Sum of Ranks
Warna	Daun Cengkeh	30	24.68	740.50
	Bunga Cengkeh	30	36.32	1089.50
	Total	60		

### Test Statistics<sup>a</sup>

	Warna
Mann-Whitney U	275.500
Wilcoxon W	740.500
Z	-2.662
Asymp. Sig. (2-tailed)	.008

a. Grouping Variable: Sampel

- Mean Rank (rata-rata peringkat) tingkat kesukaan warna daun cengkeh lebih rendah dari bunga cengkeh
- Nilai p-value < 0,05 maka terdapat perbedaan yang signifikan

### Tests of Normality

Sampel	Statistic	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Aroma	Daun Cengkeh	.202	30	.003	.908	30	.013
	Bunga Cengkeh	.213	30	.001	.909	30	.014

a. Lilliefors Significance Correction

Ket: nilai sig. < 0,05 artinya data berdistribusi tidak normal

### Mann-Whitney Test

#### Ranks

	Sampel	N	Mean Rank	Sum of Ranks
Aroma	Daun Cengkeh	30	29.92	897.50
	Bunga Cengkeh	30	31.08	932.50
	Total	60		

### Test Statistics<sup>a</sup>

	Aroma
Mann-Whitney U	432.500
Wilcoxon W	897.500
Z	-.270
Asymp. Sig. (2-tailed)	.787

a. Grouping Variable: Sampel

- Mean Rank (rata-rata peringkat) tingkat kesukaan aroma daun cengkeh lebih rendah dari bunga cengkeh
- Nilai p-value > 0,05 maka tidak terdapat perbedaan yang signifikan

Tests of Normality							
Sampel	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk			
	Statistic	df	Sig.	Statistic	df	Sig.	
Rasa	Daun Cengkeh	.226	30	<,001	.877	30	.002
	Bunga Cengkeh	.175	30	.019	.908	30	.013

a. Lilliefors Significance Correction

Ket: nilai sig. < 0,05 artinya data berdistribusi tidak normal

### Mann-Whitney Test

Ranks				
Sampel	N	Mean Rank	Sum of Ranks	
Rasa	Daun Cengkeh	30	31.17	935.00
	Bunga Cengkeh	30	29.83	895.00
Total	60			

### Test Statistics<sup>a</sup>

Rasa	
Mann-Whitney U	430.000
Wilcoxon W	895.000
Z	-.305
Asymp. Sig. (2-tailed)	.760

a. Grouping Variable: Sampel

- Mean Rank (rata-rata peringkat) tingkat kesukaan rasa daun cengkeh lebih tinggi dari bunga cengkeh
- Nilai p-value > 0,05 maka tidak terdapat perbedaan yang signifikan

Tests of Normality							
Sampel	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk			
	Statistic	df	Sig.	Statistic	df	Sig.	
Penerimaan	Daun Cengkeh	.235	30	<,001	.901	30	.009
	Bunga Cengkeh	.212	30	.001	.892	30	.005

a. Lilliefors Significance Correction

Ket: nilai sig. < 0,05 artinya data berdistribusi tidak normal

### Mann-Whitney Test

Ranks				
Sampel	N	Mean Rank	Sum of Ranks	
Penerimaan	Daun Cengkeh	30	28.32	849.50
	Bunga Cengkeh	30	32.68	980.50
Total	60			

### Test Statistics<sup>a</sup>

	Penerimaan
Mann-Whitney U	384.500
Wilcoxon W	849.500
Z	-1.016
Asymp. Sig. (2-tailed)	.310

a. Grouping Variable: Sampel

- Mean Rank (rata-rata peringkat) tingkat kesukaan penerimaan keseluruhan daun cengkeh lebih rendah dari bunga cengkeh
- Nilai p-value > 0,05 maka tidak terdapat perbedaan yang signifikan