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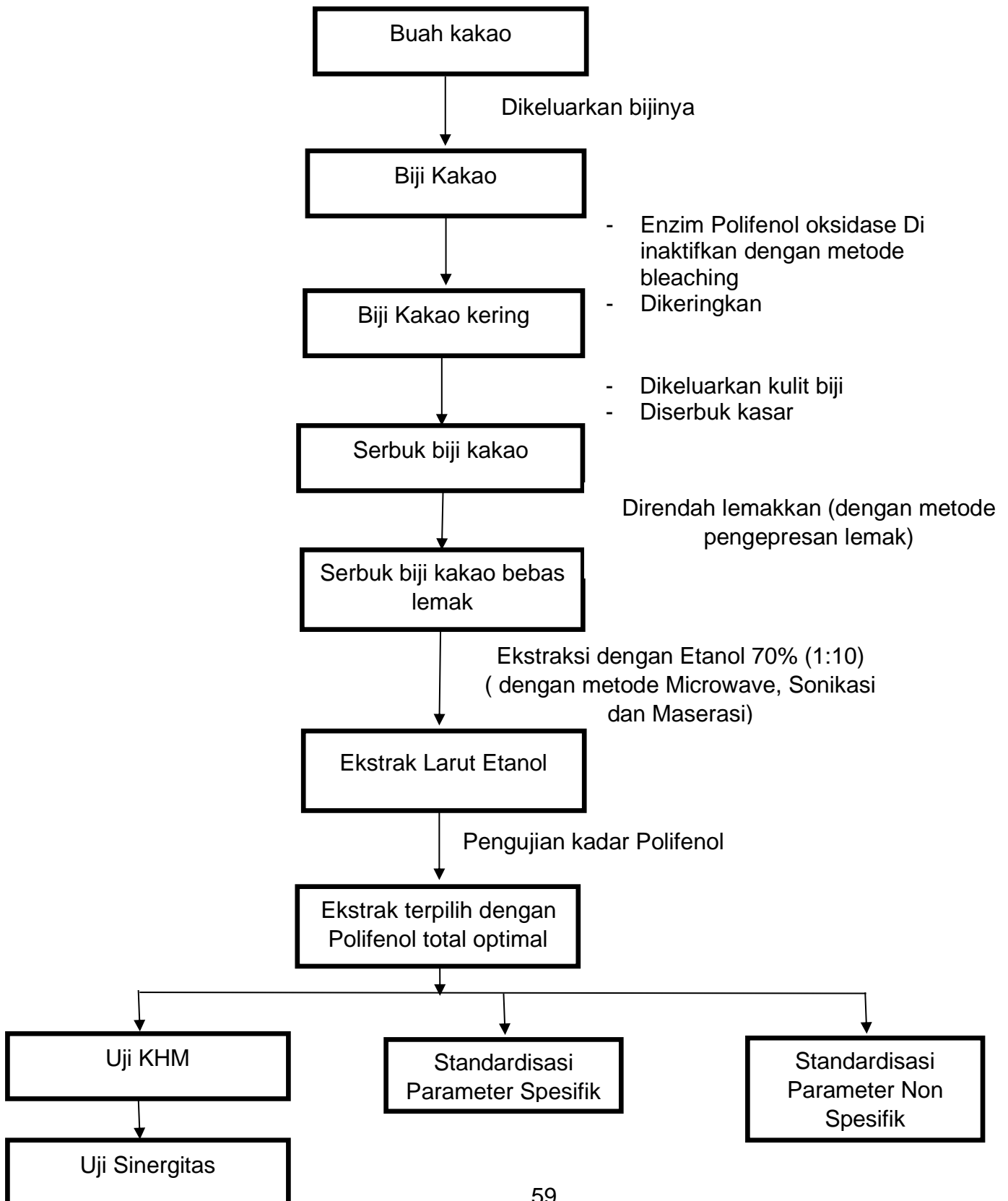
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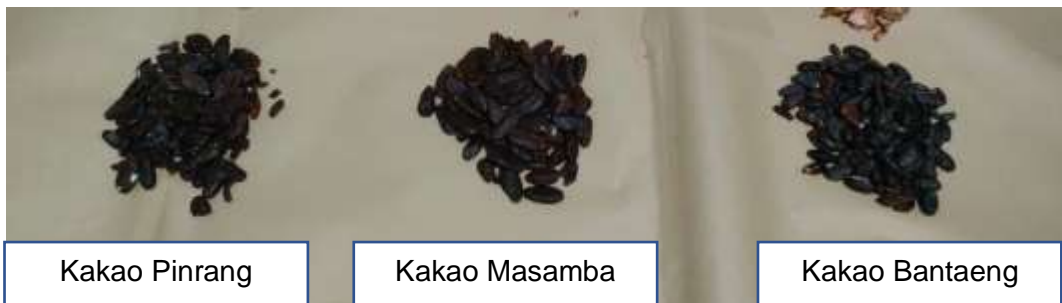
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Lampiran 1. Skema Kerja

SKEMA KERJA



Lampiran 2. Biji Kakao



Lampiran 3. Proses pengeluaran lemak kakao menggunakan alat press lemak



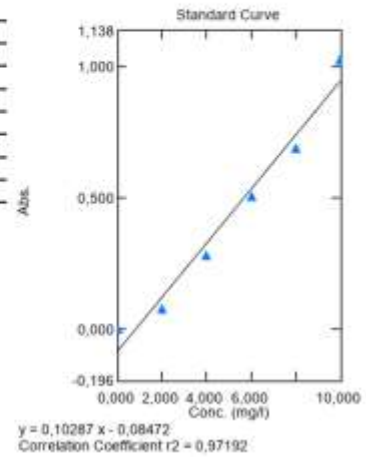
Lampiran 4. Kurva baku asam galat

LABORATORIUM BIOFARMAKA FAKULTAS FARMASI UNIVERSITAS HASANUDDIN

Gedung Pusat Kegiatan Penelitian Lantai IV Wing B

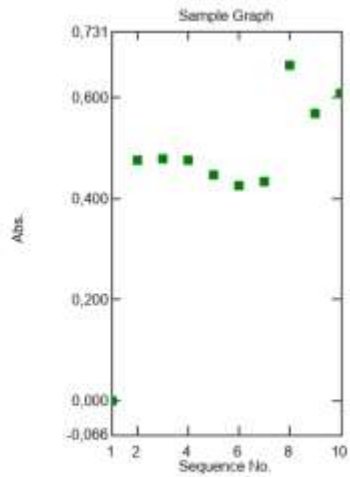
Standard Table

	Sample ID	Type	Ex	Conc	WL761.0	Wgt.Factor
1	blanko	Standard		0,000	0,000	1,000
2	asam galat 1	Standard		2,000	0,076	1,000
3	asam galat 2	Standard		4,000	0,280	1,000
4	asam galat 3	Standard		6,000	0,505	1,000
5	asam galat 4	Standard		8,000	0,690	1,000
6	asam galat 5	Standard		10,000	1,027	1,000
7						



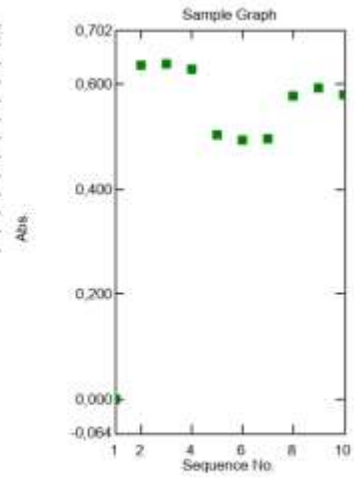
Sample Table

	Sample ID	Type	Ex	Conc	WL761.0	Comment
1	blanko	Unknown		0,826	0,000	
2	ms pirang	Unknown		5,446	0,476	
3	ms pirang2	Unknown		5,489	0,480	
4	ms pirang3	Unknown		5,464	0,477	
5	ms masamba1	Unknown		5,173	0,447	
6	ms masamba2	Unknown		4,961	0,428	
7	ms masamba3	Unknown		5,058	0,436	
8	ms bartaeng	Unknown		7,282	0,664	
9	ms bartaeng2	Unknown		6,358	0,569	
10	ms bartaeng3	Unknown		6,751	0,610	
11						



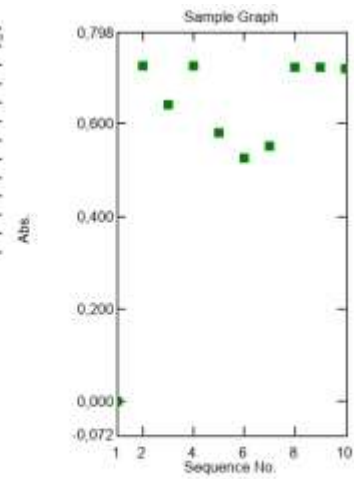
Makassar, 01/07/2022
Anelis

Sample Table						
	Sample ID	Type	Ex	Conc	WL761,8	Comment
1	blanko	Unknown		0,836	0,000	
2	m pinrang	Unknown		7,002	0,636	
3	m pinrang 2	Unknown		7,025	0,638	
4	m pinrang 3	Unknown		6,916	0,627	
5	m masamba	Unknown		5,711	0,503	
6	m masamba 2	Unknown		5,623	0,484	
7	m masamba 3	Unknown		5,643	0,496	
8	m bartaeng	Unknown		6,443	0,578	
9	m bartaeng 2	Unknown		6,581	0,592	
10	m bartaeng 3	Unknown		6,454	0,579	
11						



Makassar, 01/07/2022
Analisis

Sample Table						
	Sample ID	Type	Ex	Conc	WL761,8	Comment
1	blanko	Unknown		0,826	0,000	
2	s pinrang	Unknown		7,868	0,725	
3	s pinrang 2	Unknown		7,062	0,642	
4	s pinrang 3	Unknown		7,872	0,725	
5	s masamba	Unknown		6,482	0,582	
6	s masamba 2	Unknown		5,965	0,527	
7	s masamba 3	Unknown		6,187	0,552	
8	s bartaeng	Unknown		7,839	0,722	
9	s bartaeng 2	Unknown		7,843	0,722	
10	s bartaeng 3	Unknown		7,824	0,720	
11						



Makassar, 01/07/2022
Analisis

Lampiran 5. Perhitungan kadar polifenol ekstrak biji kakao

Tabel 4. Kadar polifenol total dalam ekstrak biji kakao asal kab. Pinrang, Masamba dan Bantaeng (Maserasi)

Konsentrasi Ekstrak (bpj)	Serapan	Konsentrasi C (µg/ml)	%b/b Kandungan polifenol total
	0,476	5,451	27,254
10	0,480	5,490	27,448
	0,477	5,460	27,302
	0,447	5,169	25,844
	0,426	4,965	24,824
	0,436	5,062	25,310
	0,664	7,278	36,392
	0,569	6,355	31,774
	0,610	6,753	33,767
Rata-rata	0,509	5,775	28,879±4,53

Keterangan : Contoh perhitungan rata-rata serapan

Persamaan garis regresi untuk kurva baku :

$$Y = 0,10287x - 0,0872 \text{ dengan koefisien korelasi } (r) = 0,97192$$

X adalah konsentrasi

Y adalah serapan

$$Y = ax + b$$

$$0,509 = 0,10287x + (0,0872)$$

$$0,509 = 0,10287x - 0,0872$$

$$0,10287x = 0,509 + 0,0872$$

Sehingga $X = \frac{Y - a}{b}$ misalnya, serapan 0,509

Konsentrasi ditentukan berdasarkan perhitungan :

$$X = \frac{0,509 + 0,0872}{0,10287} = 5,775 \text{ µg/ml}$$

Konversi menjadi %b/b dengan cara :

$$\% \text{ b/b} = \frac{\text{Konsentrasi} \times \text{Faktor pengencer} \times \text{volume awal}}{\text{Bobot sampel yang ditimbang}} \times 100\%$$

$$= \frac{5,775 \times 50 \times 10}{10,000 \mu g} \times 100\%$$

$$= \frac{2,887,5 \mu g}{10,000 \mu g} \times 100\%$$

$$\%b/b = 28,879 \%$$

Tabel 4. Kadar polifenol total dalam ekstrak biji kakao asal kab. Pinrang, Masamba dan Bantaeng (Microwave)

Konsentrasi Ekstrak (bpj)	Serapan	Konsentrasi C (µg/ml)	%b/b Kandungan polifenol total
10	0,636	7,006	35,031
	0,638	7,026	35,128
	0,627	6,919	34,593
	0,503	5,713	28,566
	0,494	5,626	28,129
	0,496	5,645	28,226
	0,578	6,442	32,212
	0,592	6,578	32,892
	0,579	6,452	32,260
	Rata-rata	0,571	6,378

Keterangan : Contoh perhitungan rata-rata serapan

Persamaan garis regresi untuk kurva baku :

$$Y = 0,10287x - 0,0872 \text{ dengan koefisien korelasi } (r) = 0,97192$$

X adalah konsentrasi

Y adalah serapan

$$Y = ax + b$$

$$0,571 = 0,10287x + (0,0872)$$

$$0,571 = 0,10287x - 0,0872$$

$$0,10287x = 0,571 + 0,0872$$

Sehingga $X = \frac{Y - a}{b}$ misalnya, serapan 0,571

Konsentrasi ditentukan berdasarkan perhitungan :

$$X = \frac{0,571 \mp 0,0872}{0,10287} = 6,378 \mu\text{g/ml}$$

Konversi menjadi %b/b dengan cara :

$$\begin{aligned} \% \text{ b/b} &= \frac{\text{Konsentrasi} \times \text{Faktor pengencer} \times \text{volume awal}}{\text{Bobot sampel yang ditimbang}} \times 100\% \\ &= \frac{6,378 \times 50 \times 10}{10,000 \mu\text{g}} \times 100\% \\ &= \frac{3,189 \mu\text{g}}{10,000 \mu\text{g}} \times 100\% \end{aligned}$$

$$\% \text{ b/b} = 31,893 \%$$

Tabel 4. Kadar polifenol total dalam ekstrak biji kakao asal kab. Pinrang, Masamba dan Bantaeng (Sonikasi)

Konsentrasi Ekstrak (bpj)	Serapan	Konsentrasi C ($\mu\text{g/ml}$)	%b/b Kandungan polifenol total
10	0,725	7,871	39,356
	0,642	7,064	35,322
	0,725	7,871	39,356
	0,582	6,481	32,406
	0,527	5,947	29,733
	0,552	6,190	30,948
	0,722	7,842	39,211
	0,722	7,842	39,211
	0,720	7,823	39,113
	Rata-rata	0,649	7,214

Keterangan : Contoh perhitungan rata-rata serapan

Persamaan garis regresi untuk kurva baku :

$$Y = 0,10287x - 0,0872 \text{ dengan koefisien korelasi } (r) = 0,97192$$

X adalah konsentrasi

Y adalah serapan

$$Y = ax + b$$

$$0,649 = 0,10287x + (0,0872)$$

$$0,649 = 0,10287x - 0,0872$$

$$0,10287x = 0,649 + 0,0872$$

Sehingga $X = \frac{Y-a}{b}$ misalnya, serapan 0,649

Konsentrasi ditentukan berdasarkan perhitungan :

$$X = \frac{0,649 + 0,0872}{0,10287} = 7,214 \mu\text{g/ml}$$

Konversi menjadi %b/b dengan cara :

$$\% \text{ b/b} = \frac{\text{Konsentrasi} \times \text{Faktor pengencer} \times \text{volume awal}}{\text{Bobot sampel yang ditimbang}} \times 100\%$$

$$= \frac{7,214 \times 50 \times 10}{10,000 \mu\text{g}} \times 100\%$$

$$= \frac{3,607 \mu\text{g}}{10,000 \mu\text{g}} \times 100\%$$

$$\% \text{ b/b} = 36,07 \%$$

Lampiran 6. Hasil Standardisasi Ekstrak Biji Kakao

A. Standardisasi Spesifik

Identitas Ekstrak

Pengamatan	Pemerian Ekstrak biji kakao
Bentuk	Ekstrak kental
Warna	Coklat
Bau	Bau khas aromatik
Rasa	Pahit

B. Standardisasi Non Spesifik

1. Kadar Air



a. Pinrang

$$\begin{aligned}\text{Bobot akhir} &= (\text{cawan} + \text{sampel}) - (\text{cawan kosong}) \\ &= 65,981 \text{ g} - 56,832 \text{ g} \\ &= 9,149 \text{ g}\end{aligned}$$

$$\begin{aligned}\% \text{ Kadar Air} &= \frac{\text{Bobot Awal} - \text{Bobot Akhir}}{\text{Bobot awal}} \times 100\% \\ &= \frac{10 \text{ g} - 9,149}{10 \text{ g}} \times 100\% \\ &= 8,51\%\end{aligned}$$

b. Bantaeng

$$\begin{aligned}\text{Bobot akhir} &= (\text{cawan} + \text{sampel}) - (\text{cawan kosong}) \\ &= 51,292 \text{ g} - 42,242 \text{ g}\end{aligned}$$

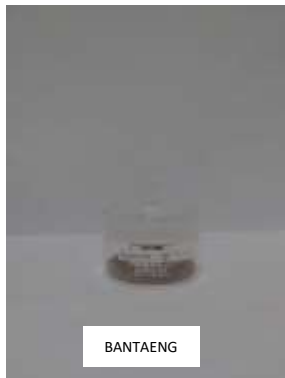
$$\begin{aligned}
 &= 9,05 \text{ g} \\
 \% \text{ Kadar Air} &= \frac{\text{Bobot Awal} - \text{Bobot Akhir}}{\text{Bobot awal}} \times 100\% \\
 &= \frac{10 \text{ g} - 9,05 \text{ g}}{10 \text{ g}} \times 100\% \\
 &= 9,5\%
 \end{aligned}$$

c. Masamba

$$\begin{aligned}
 \text{Bobot akhir} &= (\text{cawan} + \text{sampel}) - (\text{cawan kosong}) \\
 &= 63,764 \text{ g} - 59,127 \text{ g} \\
 &= 4,63 \text{ g}
 \end{aligned}$$

$$\begin{aligned}
 \% \text{ Kadar Air} &= \frac{\text{Bobot Awal} - \text{Bobot Akhir}}{\text{Bobot awal}} \times 100\% \\
 &= \frac{5 \text{ gr} - 4,637 \text{ g}}{5 \text{ g}} \times 100\% \\
 &= 7,26\%
 \end{aligned}$$

2. Susut Pengerinan



a. Pinrang

$$\begin{aligned}
 \text{Bobot akhir} &= (\text{cawan} + \text{sampel}) - (\text{cawan kosong}) \\
 &= 23,438 \text{ g} - 21,589 \text{ g} \\
 &= 1,849 \text{ g}
 \end{aligned}$$

$$\begin{aligned}
 \text{Susut Pengerinan} &= \frac{\text{Bobot Awal} - \text{Bobot Akhir}}{\text{Bobot awal}} \times 100\% \\
 &= \frac{2 \text{ g} - 1,849 \text{ g}}{2 \text{ g}} \times 100\% \\
 &= 7,55\%
 \end{aligned}$$

b. Bantaeng

$$\begin{aligned} \text{Bobot akhir} &= (\text{cawan} + \text{sampel}) - (\text{cawan kosong}) \\ &= 39,717 \text{ g} - 37,862 \text{ g} \\ &= 1,855 \text{ g} \end{aligned}$$

$$\begin{aligned} \text{Susut Pengeringan} &= \frac{\text{Bobot Awal} - \text{Bobot Akhir}}{\text{Bobot awal}} \times 100\% \\ &= \frac{2 \text{ g} - 1,855 \text{ g}}{2 \text{ g}} \times 100\% \\ &= 7,25\% \end{aligned}$$

c. Masamba

$$\begin{aligned} \text{Bobot akhir} &= (\text{cawan} + \text{sampel}) - (\text{cawan kosong}) \\ &= 39,676 \text{ g} - 37,861 \text{ g} \\ &= 1,815 \text{ g} \end{aligned}$$

$$\begin{aligned} \text{Susut Pengeringan} &= \frac{\text{Bobot Awal} - \text{Bobot Akhir}}{\text{Bobot awal}} \times 100\% \\ &= \frac{2 \text{ g} - 1,815 \text{ g}}{2 \text{ g}} \times 100\% \\ &= 9,25\% \end{aligned}$$

3. Kadar Abu Total



a. Masamba

$$\begin{aligned} \text{Bobot Konstan} &= (\text{krus} + \text{sampel}) - (\text{krus kosong}) \\ &= 26,3565 \text{ g} - 26,2747 \text{ g} \\ &= 0,0818 \text{ g} \end{aligned}$$

$$\begin{aligned} \% \text{ Kadar abu} &= \frac{\text{Berat Konstan}}{\text{Berat Sampel}} \times 100\% \\ &= \frac{0,0818 \text{ g}}{2 \text{ g}} \times 100\% \\ &= 4,09\% \end{aligned}$$

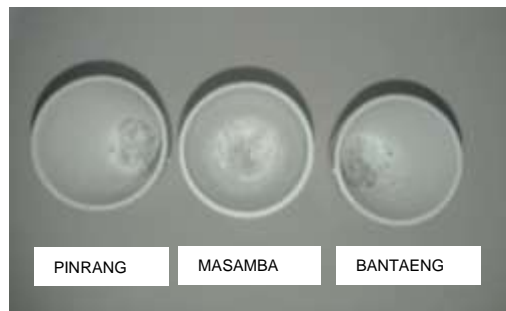
b. Bantaeng

$$\begin{aligned}
 \text{Bobot Konstan} &= (\text{krus+ sampel}) - (\text{krus kosong}) \\
 &= 22,1741 \text{ g} - 22,0969 \text{ g} \\
 &= 0,0772 \text{ g} \\
 \% \text{ Kadar abu} &= \frac{\text{Berat Konstan}}{\text{Berat Sampel}} \times 100\% \\
 &= \frac{0,0772 \text{ g}}{2 \text{ g}} \times 100\% \\
 &= 3,86\%
 \end{aligned}$$

c. Pinrang

$$\begin{aligned}
 \text{Bobot Konstan} &= (\text{krus+ sampel}) - (\text{krus kosong}) \\
 &= 22,2971 \text{ g} - 22,2171 \text{ g} \\
 &= 0,08 \text{ g} \\
 \% \text{ Kadar abu} &= \frac{\text{Berat Konstan}}{\text{Berat Sampel}} \times 100\% \\
 &= \frac{0,08 \text{ g}}{2 \text{ g}} \times 100\% \\
 &= 4\%
 \end{aligned}$$

4. Kadar Abu Tidak Larut Asam



a. Masamba

$$\begin{aligned}
 \text{Bobot Konstan} &= (\text{krus+ sampel}) - (\text{krus kosong}) \\
 &= 25,1177 \text{ g} - 25,1034 \text{ g} \\
 &= 0,0143 \text{ g} \\
 \% \text{ Kadar abu} &= \frac{\text{Berat Konstan}}{\text{Berat Sampel}} \times 100\% \\
 &= \frac{0,0143 \text{ g}}{2 \text{ g}} \times 100\% \\
 &= 0,715\%
 \end{aligned}$$

b. Bantaeng

$$\begin{aligned}\text{Bobot Konstan} &= (\text{krus+ sampel}) - (\text{krus kosong}) \\ &= 25,4712 \text{ g} - 25,4580 \text{ g} \\ &= 0,0132 \text{ g}\end{aligned}$$

$$\begin{aligned}\% \text{ Kadar abu} &= \frac{\text{Berat Konstan}}{\text{Berat Sampel}} \times 100\% \\ &= \frac{0,0132 \text{ g}}{2 \text{ g}} \times 100\% \\ &= 0,66\%\end{aligned}$$

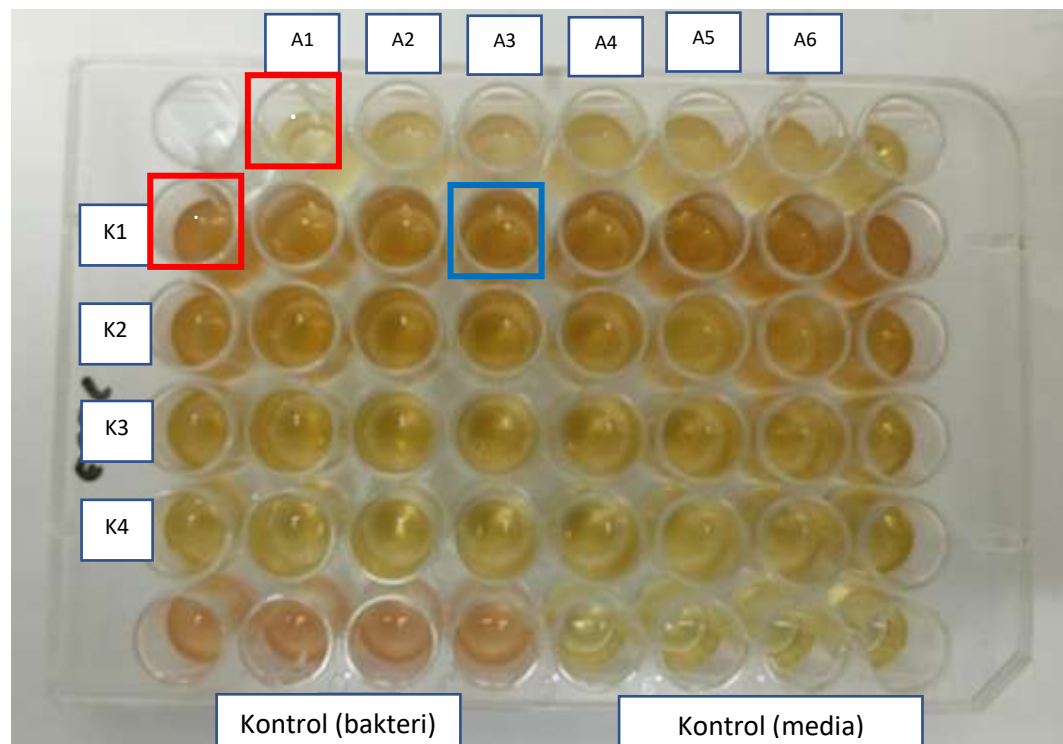
c. Pinrang

$$\begin{aligned}\text{Bobot Konstan} &= (\text{krus+ sampel}) - (\text{krus kosong}) \\ &= 26,3921 \text{ g} - 26,3742 \text{ g} \\ &= 0,0179 \text{ g}\end{aligned}$$

$$\begin{aligned}\% \text{ Kadar abu} &= \frac{\text{Berat Konstan}}{\text{Berat Sampel}} \times 100\% \\ &= \frac{0,0179 \text{ g}}{2 \text{ g}} \times 100\% \\ &= 0,895\%\end{aligned}$$

Lampiran 7.

Hasil penentuan KHM Amoksisilin yang dikombinasi Ekstrak Biji Kakao dan faktor modulasi terhadap *E.coli* Penghasil ESBL



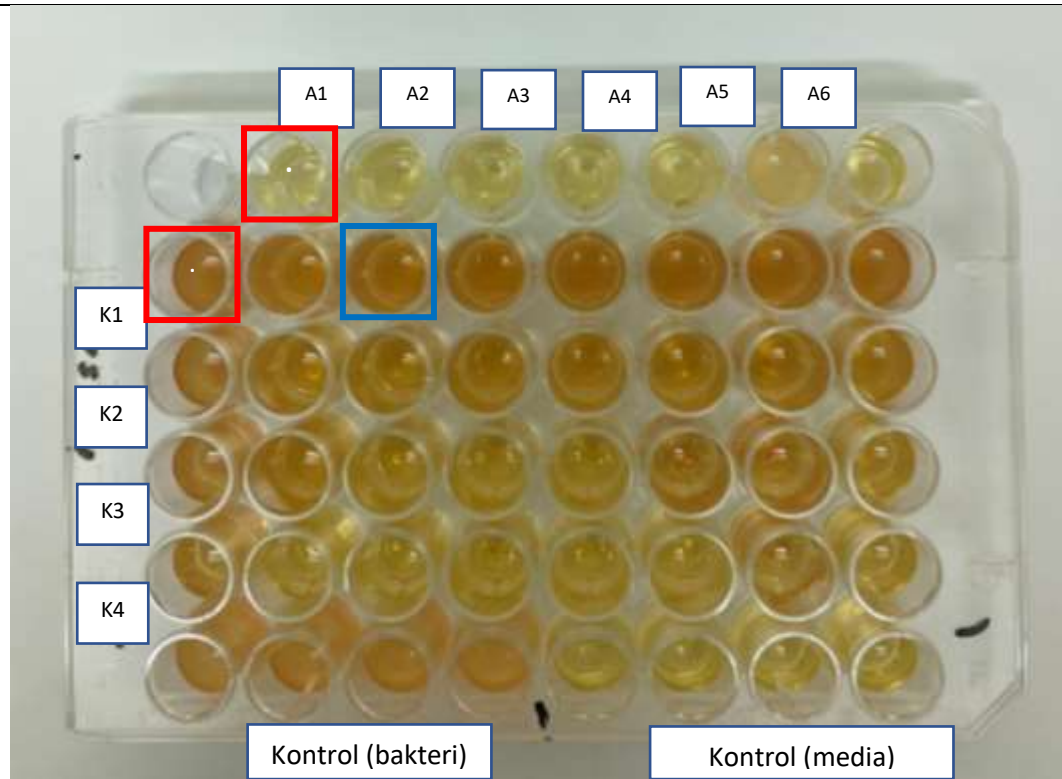
Keterangan :

A1 = 0,256 mg/ml
 A2 = 0,128 mg/ml
 A3 = 0,064 mg/ml
 A4 = 0,032 mg/ml
 A5 = 0,016 mg/ml
 A6 = 0,008 mg/ml

K1 = 5 mg/ml
 K2 = 2,5 mg/ml
 K3 = 1,25 mg/ml
 K4 = 0,625 mg/ml
 K(+) = Kontrol Bakteri
 K(-) = Kontrol Media
 = KHM amoksisilin dan ekstrak Biji Kakao
 = KHM Amoksisilin kombinasi ekstrak biji kakao

Lampiran 8

Hasil penentuan KHM Amoksisilin yang dikombinasi Ekstrak Biji Kakao dan faktor modulasi terhadap *Methicillin Resistant Staphylococcus* (MRSA)

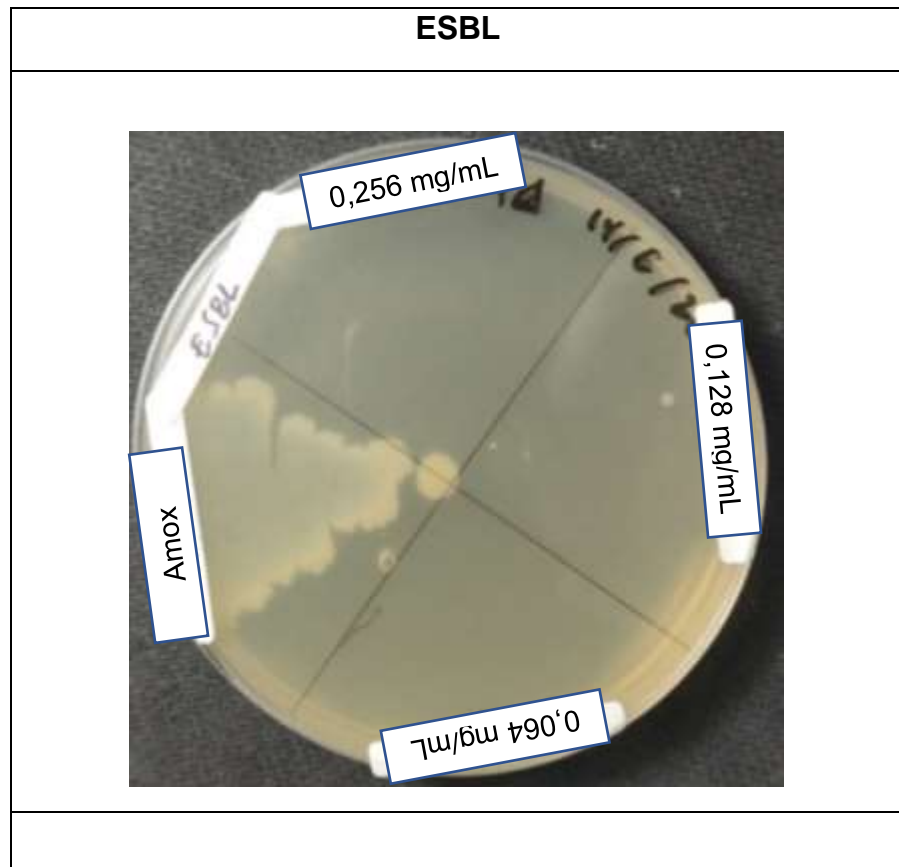


Keterangan :

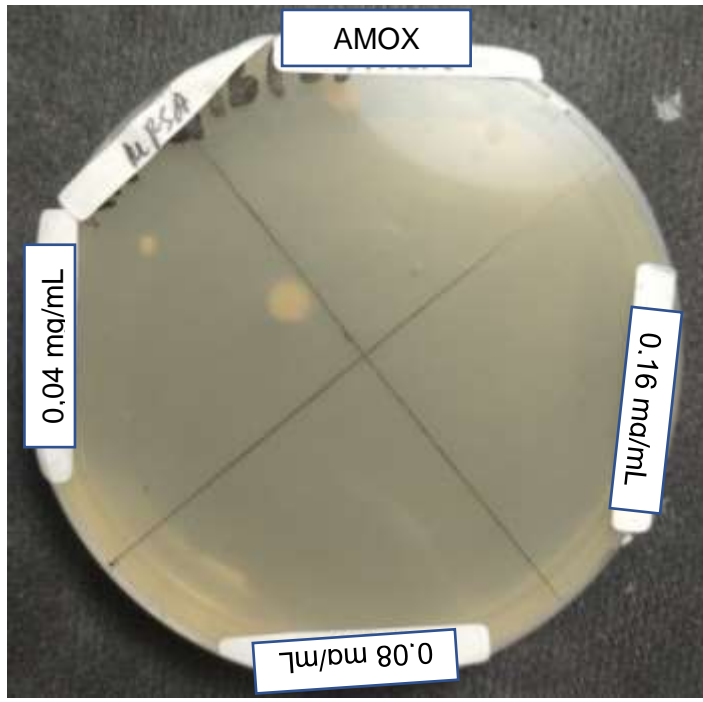
A1 = 0,016 mg/ml
A2 = 0,008 mg/ml
A3 = 0,004 mg/ml
A4 = 0,002 mg/ml
A5 = 0,001 mg/ml
A6 = 0,0005 mg/ml

K1 = 5 mg/ml
K2 = 2,5 mg/ml
K3 = 1,25 mg/ml
K4 = 0,625 mg/ml
K(+) = Kontrol Bakteri
K(-) = Kontrol Media
☐ = KHM amoksisilin dan ekstrak Biji Kakao
☐ = KHM Amoksisilin kombinasi ekstrak biji kakao

Lampiran 9. Hasil uji penegas penentuan KHM Amoksisilin yang dikombinasi Ekstrak Biji Kakao



MRSA



Lampiran 10. Perhitungan Nilai *Fractional Inhibition Concentration Index* (FICI)

Perhitungan nilai FIC (*Fractional Inhibition Concentration Index*)

A. Perhitungan nilai FIC (*Fractional Inhibition Concentration Index*) ESBL

Perhitungan FIC sesuai nilai KHM Ekstrak Kakao

$$\text{FIC Kakao} = \frac{\text{KHM Ekstrak kakao kombinasi amoksisilin}}{\text{KHM Ekstrak kakao}}$$

$$\text{FIC Kakao} = \frac{5}{5} = 1$$

$$\text{FIC Amox} = \frac{\text{KHM Amoksisilin kombinasi ekstrak kakao}}{\text{KHM Amoksisilin}}$$

$$\text{FIC Amox} = \frac{0,064}{>0,256} = < 0,25$$

$$\text{FICI} = \text{FIC (Ekstrak Kakao)} + \text{FIC (Amoksisilin)}$$

$$= 1 + < 0,25$$

$$= < 1,25 \text{ (Efek Aditif : FICI} > 0,5 \text{ tapi} \leq 1)$$

B. Perhitungan nilai FIC (*Fractional Inhibition Concentration Index*) MRSA

Perhitungan FIC sesuai nilai KHM Ekstrak Kakao

$$\text{FIC Kakao} = \frac{\text{KHM Ekstrak kakao kombinasi amoksisilin}}{\text{KHM Ekstrak kakao}}$$

$$\text{FIC Kakao} = \frac{5}{5} = 1$$

$$\text{FIC Amox} = \frac{\text{KHM Amoksisilin kombinasi ekstrak kakao}}{\text{KHM Amoksisilin}}$$

$$\text{FIC Amox} = \frac{0,08}{0,16} = 0,5$$

$$\text{FICI} = \text{FIC (Ekstrak Kakao)} + \text{FIC (Amoksisilin)}$$

$$= 1 + 0,5$$

$$= \mathbf{1,5 \text{ (Efek Berbeda : FICI > 1 tapi } \leq 4)}$$

Lampiran 10. Surat Keterangan Selesai Penelitian

	ADMINISTRASI	FORMULIR 2
	Nomor : 219/06/FR2/2023	Tanggal : 26 Juni 2023
SURAT KETERANGAN SELESAI PENGAMBILAN DATA/ ANALISA BAHAN HAYATI		

Dengan hormat,

Dengan ini menerangkan bahwa peneliti/mahasiswa berikut ini :

Nama : Dedy Ma'ruf
NIM : N012191021
Institusi : Sekolah Pascasarjana Universitas Hasanuddin (Farmasi)
Judul Penelitian : Studi Sinergitas Kombinasi Ekstrak Etanol Biji Kakao (Theobroma Cacao L) Terstandar Dan Amoxicillin Terhadap Bakteri Escherichia Coli Dan Staphylococcus Aureus

Telah selesai melakukan pengambilan data/ analisa bahan hayati :

Pada tanggal : 25 Juni 2023
Jumlah subjek : +
Jenis data : Data Primer


Dengan staf pendamping/pembimbing :

Nama : Ridha Wahyuni, ST.
Konsultan : +

Surat keterangan ini juga merupakan penjelasan bahwa peneliti/mahasiswa diatas tidak mempunyai sangkutan lagi pada unit/laboratorium kami.

Demikian surat ini dibuat untuk dipergunakan sebagaimana mestinya.

Pendamping/Pembimbing


Ridha Wahyuni, ST.
NIP.

Mengetahui,
Kepala Laboratorium,


HUM-RC
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dr. Rusdina Bte Ladju, Ph.D
NIP. 198108302012122002