

LAMPIRAN


MAJELIS PENDIDIKAN TINGGI, PENELITIAN DAN PENGEMBANGAN
UNIVERSITAS MUHAMMADIYAH PALOPO
LEMBAGA PENELITIAN DAN PENGABDIAN KEPADA MASYARAKAT (LPPM)
 Jl. Jend. Sudirman Km. 03 Bintuni, Kota Palopo (91959) – Telp/Fax: (0471) 327429

Nomor : 704/III.3.AU/LPPM/F/2025 Palopo, 28 November 2025
 Lampiran : -
 Perihal : Permohonan Izin Penelitian

Kepada Yth
 Kepala Lab Farmasi UM.Palopo
 Di _____
 Tempat

Assalamu 'alaikum warahmatullahi wabarakatuh

Dengan hormat, disampaikan bahwa dalam rangka pelaksanaan penelitian Mahasiswa Universitas Muhammadiyah Palopo, mohon kiranya diberikan izin untuk melakukan kegiatan penelitian kepada:

Nama : Febrianti Rahmat
 NIM : 221320088
 Jurusan : SI Farmasi
 Alamat : Songka, Kota Palopo
 Jenis Kelamin : Perempuan
 No.Hp/Wa : 082196782546

Untuk melengkapi data penelitian yang berkaitan dengan Judul **"Potensi Antiplatemodial Sirup Ekstrak Daun Pepaya (Carica Papaya L): Studi In Silico Kandungan Kimia Dan Prediksi Parameter Farmakokinetik Dan Toksisitasnya"** yang akan dilakukan pada November-Desember 2025

Demikian permohonan dari kami, atas kerjasama yang baik diucapkan terima kasih.

Wassalamu 'alaikum warahmatullahi wabarakatuh


 Febrianti Rahmat, S.Kep., Ners, C.A., Ph.D
 NIDN: 0919067305

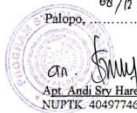
Tembusan:
 - Dekan Bersangkutan

SURAT IZIN PENELITIAN

Yang bertanda tangan di bawah ini Sekretaris Program Studi Farmasi menyatakan,

Nama : FEBRIANTI RAHMAT
 NIM : 221320088

Dapat melaksanakan penelitian di Laboratorium KIMIA DAN TEKNO. Fakultas Farmasi Universitas Muhammadiyah Palopo.

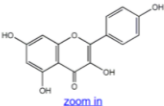
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 Palopo,

 Apt. Andi Seti Hardiyanti, S.Farm., M.Farm.
 NUPTK. 4049774675230303

CSJ Dipindai dengan CamScanner

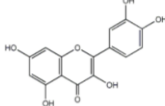
Lampiran 1. *In Silico*

a. *KNAPSACK*

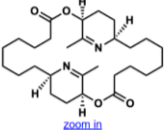
1) Kaempferol

Metabolite Information		Structural formula
Name	Kaempferol Nimbecetin Pelargidenolon Rhamnolutein 3,5,7,4'-Tetrahydroxyflavone 5,7,4'-Trihydroxyflavonol 3,5,7-Trihydroxy-2-(4-hydroxyphenyl)-4H-1-benzopyran-4-one Kaempferol	 zoom in
Formula	C15H10O6	
Mw	286.04773805	
CAS RN	520-18-3	
C_ID	C00004565 Twins (%)	
InChIKey	IYRMWVYZSOPJKC-UHFFFAOYSA-N	
InChICode	InChI=1S/C15H10O6/c16-8-3-1-7(2-4-8)/15-14(20)13(19)12-10(18)5-9(17)6-11(12)21-15/h1-6,16-18,20H	
SMILES	O=c1c(O)c(-c2ccc(O)cc2)cc2cc(O)cc(O)c12	
Start Substs in Alk. Biosynthesis (Prediction)		

2) Quercetin

Metabolite Information		Structural formula
Name	Quercetin Quercetol	 zoom in
Formula	C15H10O7	
Mw	302.04265268	
CAS RN	117-39-5	
C_ID	C00004631 Twins (%)	
InChIKey	REFJWTPEDVJJIY-UHFFFAOYSA-N	
InChICode	InChI=1S/C15H10O7/c16-7-4-10(19)12-11(5-7)22-15(14(21)13(12)20)6-1-2-8(17)9(18)3-6/h1-5,16-19,21H	
SMILES	O=c1c(O)c(-c2ccc(O)c(O)c2)cc2cc(O)cc(O)c12	
Start Substs in Alk. Biosynthesis (Prediction)		

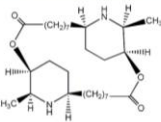
3) Dehydrocarpaine II

Metabolite Information		Structural formula
Name	Dehydrocarpaine II	 zoom in
Formula	C28H46N2O4	
Mw	474.34575797	
CAS RN	72362-03-9	
C_ID	C00054513	
InChIKey	OEDAQCLCHGASNH-XPGKHFPBSA-N	
InChICode	InChI=1S/C28H46N2O4/c1-21-25-19-17-23(29-21)13-9-5-3-8-12-16-28(32)34-26-20-18-24(30-22)(26)2)14-10-6-4-7-11-15-27(31)33-25/h23-26H,3-20H2,1-2H3/t23-24-,25+,26+/m1/s1	
SMILES	CC1=N[C@@H]2CCCCCCCCC(=O)O[C@@H]3CC[C@@H]4CCCCCCC(=O)O[C@@H]1CC2)N=C3C	
Start Substs in Alk. Biosynthesis (Prediction)		

4) Linoleic acid

Metabolite Information		Structural formula
Name	Linoleic acid, methyl ester Methyl linoleate Methyl 9Z,12Z-octadecadienoate	 zoom in
Formula	C19H34O2	
Mw	294.25588033	
CAS RN	112-63-0	
C_ID	C00030757, Twins (%)	
InChIKey	WTTJVINHCBLGX-NOLNTRDSA-N	
InChICode	InChI=1S/C19H34O2/c1-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19(20)/21-2h7-8,10-11H,3-6,9,12-18H2,1-2H3/b8-7-,11-10-	
SMILES	CCCCC/C=C/C=C\CCCCCCCC(=O)OC	
Start Substs in Alk. Biosynthesis (Prediction)		

5) Carpaine

Metabolite Information		Structural formula
Name	Carpaine	 zoom in
Formula	C28H50N2O4	
Mw	478.3770581	
CAS RN	3463-92-1	
C_ID	C00002026, Twins (%)	
InChIKey	AMSCMASJCYYAIF-PBZHICBUNA-N	
InChICode	InChI=1S/C28H50N2O4/c1-21-25-19-17-23(29-21)/13-9-5-3-8-12-16-28(32)/34-26-20-18-24(30-22)(26)/14-10-6-4-7-11-15-27(31)/33-25/h21-26,29-30H,3-20H2,1-2H3/t21-22-,23+,24+,25-,26-/m0/s1	
SMILES	C[C@@H]1N[C@@H]2CCCCCCCC(=O)O[C@H]3CC[C@@H]1CCCCCCCC(=O)O[C@H]1CC2N[C@H]3C	
Start Substs in Alk. Biosynthesis (Prediction)	L-Pro L-Lys L-Arg L-Ala L-Asp	
Kingdom	Plantae	Reference
Family	Caricaceae	
Species	Carica papaya (W)	Ref.

b. Way2drug / PASS Online

1) Kaempferol

[SENYUM](#)
[berkas MOL](#)
[Editor JSME](#)

O=c1c(O)c(-c2ccc(O)cc2)oc2cc(O)cc(C

Dapatkan prediksi

0,923	0,002	Alcohol dehydrogenase (NADP+) inhibitor
0,923	0,004	Ubiquinol-cytochrome-c reductase inhibitor
0,919	0,001	Beta-carotene 15,15'-monooxygenase inhibitor
0,917	0,001	MAP kinase stimulant
0,906	0,002	UGT1A9 substrate
0,907	0,004	CYP1A2 substrate
0,004	0,003	Glutathione S-transferase inhibitor

0,923	0,004	Ubiquinol-cytochrome-c reductase inhibitor
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2) Quercetin

SENYUM berkas MOL Editor JSME

O=c1c(O)c(-c2ccc(O)c(O)c2)oc2cc(O)c

Dapatkan prediksi

0.900	0.005	Ubiquinol-cytochrome-c reductase inhibitor
0.895	0.002	Histidine kinase inhibitor
0.894	0.002	UGT1A3 substrate
0.894	0.003	UGT1A substrate
0.891	0.001	Iodide peroxidase inhibitor
0.894	0.004	Aldehyde oxidase inhibitor
0.887	0.002	AR expression inhibitor

0,900 0,005 Ubiquinol-cytochrome-c reductase inhibitor

3) Dehydrocarpaine II

SENYUM berkas MOL Editor JSME

CC1=N[C@@H]2CCCCCCCC(=O)O[C

Dapatkan prediksi

☒ Semua ☐ Pa>Pi ☐ Pa>0.3 ☐ Pa>0.7 ok

Pa	Pi	Aktivitas
0.846	0.018	Inhibitor ubiquinol-sitokrom-c reduktase
0.767	0.017	Antagonis reseptor nikotinik alfa6beta3beta4alfa5
0.751	0.005	Inhibitor fosfatase
0.761	0.024	Substrat CYP2H
0.750	0.046	Agonis integritas membran

0.846 0,018 Inhibitor ubiquinol-sitokrom-c reduktase

4) Linoleic Acid

SENYUM berkas.MOL Editor JSME

CCCC/C=C/C=C/CCCCCCCC(=O)O

Dapatkan prediksi

0,875	0,002	Alcohol O-acetyltransferase inhibitor
0,869	0,007	Mucomembranous protector
0,859	0,001	Endocannabinoid uptake inhibitor
0,866	0,013	Ubiquinol-cytochrome-c reductase inhibitor
0,863	0,013	Phobic disorders treatment
0,846	0,003	Preneoplastic conditions treatment
0,843	0,003	Phosphatidylglycerophosphatase inhibitor
0,833	0,005	Linoleate diol synthase inhibitor

0,866 0,013 Ubiquinol-cytochrome-c reductase inhibitor

5) Carpaine

SENYUM berkas.MOL Editor JSME

C[C@@H]1N[C@@H]2CCCCCCCC(=

Dapatkan prediksi

0,841	0,005	Nicotinic alpha6beta3beta4alpha5 receptor antagonist
0,815	0,008	Nicotinic alpha2beta2 receptor antagonist
0,779	0,002	Nicotinic alpha4beta2 receptor antagonist
0,728	0,008	Phosphatase inhibitor
0,750	0,050	Ubiquinol-cytochrome-c reductase inhibitor
0,690	0,019	Antidyskinetic
0,665	0,012	General pump inhibitor
0,675	0,042	CYP2H substrate

0,750 0,050 Ubiquinol-cytochrome-c reductase inhibitor

c. *SwissADME*

1) Kaempferol

Pharmacokinetics	
GI absorption	High
BBB permeant	No
P-gp substrate	No
CYP1A2 inhibitor	Yes
CYP2C19 inhibitor	No
CYP2C9 inhibitor	No
CYP2D6 inhibitor	Yes
CYP3A4 inhibitor	Yes
Log K_p (skin permeation)	-6.70 cm/s
Druglikeness	
Lipinski	Yes; 0 violation
Ghose	Yes
Veber	Yes
Egan	Yes
Muegge	Yes
Bioavailability Score	0.55

2) Quercetin

Pharmacokinetics	
GI absorption	High
BBB permeant	No
P-gp substrate	No
CYP1A2 inhibitor	Yes
CYP2C19 inhibitor	No
CYP2C9 inhibitor	No
CYP2D6 inhibitor	Yes
CYP3A4 inhibitor	Yes
Log K_p (skin permeation)	-7.05 cm/s
Druglikeness	
Lipinski	Yes; 0 violation
Ghose	Yes
Veber	Yes
Egan	Yes
Muegge	Yes
Bioavailability Score	0.55

3) Dehydrocarpaine

Pharmacokinetics	
GI absorption	High
BBB permeant	No
P-gp substrate	Yes
CYP1A2 inhibitor	No
CYP2C19 inhibitor	No
CYP2C9 inhibitor	No
CYP2D6 inhibitor	No
CYP3A4 inhibitor	No
Log K_p (skin permeation)	-5.18 cm/s
Druglikeness	
Lipinski	Yes; 0 violation
Ghose	No; 3 violations: WLOGP>5.6, MR>130, #atoms>70
Veber	Yes
Egan	Yes
Muegge	No; 1 violation: XLOGP3>5
Bioavailability Score	0.55

4) Linoleic acid

Pharmacokinetics	
GI absorption	High
BBB permeant	Yes
P-gp substrate	No
CYP1A2 inhibitor	Yes
CYP2C19 inhibitor	No
CYP2C9 inhibitor	Yes
CYP2D6 inhibitor	No
CYP3A4 inhibitor	No
Log K_p (skin permeation)	-3.41 cm/s
Druglikeness	
Lipinski	Yes; 1 violation: MLOGP>4.15
Ghose	No; 1 violation: WLOGP>5.6
Veber	No; 1 violation: Rotors>10
Egan	Yes
Muegge	No; 1 violation: XLOGP3>5
Bioavailability Score	0.85

5) Carpaine

Pharmacokinetics	
GI absorption	High
BBB permeant	No
P-gp substrate	Yes
CYP1A2 inhibitor	No
CYP2C19 inhibitor	No
CYP2C9 inhibitor	No
CYP2D6 inhibitor	No
CYP3A4 inhibitor	No
Log K_p (skin permeation)	-4.75 cm/s
Druglikeness	
Lipinski	Yes; 0 violation
Ghose	No; 2 violations: MR>130, #atoms>70
Veber	Yes
Egan	Yes
Muegge	No; 1 violation: XLOGP3>5
Bioavailability Score	0.55

d. *Protox*

1) Kaempferol

Hasil prediksi toksisitas oral untuk senyawa masukan

LD50 yang diprediksi: 3919 mg/kg

Kelas Toksisitas yang Diprediksi: 5

Laporan Model Toksisitas

Menyalin Unggul CSV PDF

Klasifikasi	Target	Steno	Ramalan	Kemungkinan
Toksisitas organ	Hepatotoksisitas	dili	Tidak aktif	0,68
Titik akhir toksisitas	Karsinogenisitas	karcino	Tidak aktif	0,72
Titik akhir toksisitas	Imunotoksisitas	imun	Tidak aktif	0,96
Titik akhir toksisitas	Mutagenisitas	mutagen	Tidak aktif	0,52
Titik akhir toksisitas	Sitotoksisitas	sito	Tidak aktif	0,98

2) Quercetin

Hasil prediksi toksisitas oral untuk senyawa masukan

LD50 yang diprediksi: 159 mg/kg

Kelas Toksisitas yang Diprediksi: 3

Laporan Model Toksisitas

Menyalin Unggul CSV PDF

Klasifikasi	Target	Steno	Ramalan	Kemungkinan
Toksisitas organ	Hepatotoksisitas	dili	Tidak aktif	0,69
Titik akhir toksisitas	Karsinogenisitas	karcino	Aktif	0,68
Titik akhir toksisitas	Imunotoksisitas	imun	Tidak aktif	0,87
Titik akhir toksisitas	Mutagenisitas	mutagen	Aktif	0,51
Titik akhir toksisitas	Sitotoksisitas	sito	Tidak aktif	0,99

3) Dehydrocarpaine II

Hasil prediksi toksisitas oral untuk senyawa masukan

LD50 yang diprediksi: 3000 mg/kg

Kelas Toksisitas yang Diprediksi: 5

Laporan Model Toksisitas

Menyalin Unggul CSV PDF

Klasifikasi	Target	Steno	Ramalan	Kemungkinan
Toksisitas organ	Hepatotoksisitas	dili	Tidak aktif	0,79
Titik akhir toksisitas	Karsinogenisitas	karcino	Tidak aktif	0,54
Titik akhir toksisitas	Imunotoksisitas	imun	Tidak aktif	0,94
Titik akhir toksisitas	Mutagenisitas	mutagen	Tidak aktif	0,75
Titik akhir toksisitas	Sitotoksisitas	sito	Tidak aktif	0,61

4) Linoleic acid

Hasil prediksi toksisitas oral untuk senyawa masukan

LD50 yang diprediksi: 20000 mg/kg

Kelas Toksisitas yang Diprediksi: 6

Laporan Model Toksisitas				
Menyalin Unggul CSV PDF				
Klasifikasi	Target	Steno	Ramalan	Kemungkinan
Toksisitas organ	Hepatotoksisitas	dili	Tidak aktif	0,59
Titik akhir toksisitas	Karsinogenisitas	karcino	Tidak aktif	0,56
Titik akhir toksisitas	Imunotoksisitas	imun	Tidak aktif	0,86
Titik akhir toksisitas	Mutagenisitas	mutagen	Tidak aktif	0,98
Titik akhir toksisitas	Sitotoksisitas	sito	Tidak aktif	0,70

5) Carpaine

Hasil prediksi toksisitas oral untuk senyawa masukan

LD50 yang diprediksi: 500 mg/kg

Kelas Toksisitas yang Diprediksi: 4

Laporan Model Toksisitas				
Menyalin Unggul CSV PDF				
Klasifikasi	Target	Steno	Ramalan	Kemungkinan
Toksisitas organ	Hepatotoksisitas	dili	Tidak aktif	0,79
Titik akhir toksisitas	Karsinogenisitas	karcino	Tidak aktif	0,62
Titik akhir toksisitas	Imunotoksisitas	imun	Tidak aktif	0,95
Titik akhir toksisitas	Mutagenisitas	mutagen	Tidak aktif	0,80
Titik akhir toksisitas	Sitotoksisitas	sito	Tidak aktif	0,63

Lampiran 2. Perhitungan

a. Perhitungan Formula

$$\text{Propilenglikol} = \frac{12}{100} \times 50 \text{ ml} = 6 \text{ ml}$$

$$\text{Nipagin} = \frac{0,2}{100} \times 50 \text{ ml} = 0,1 \text{ ml}$$

Sirup simplex ad 50 ml

b. Perhitungan Ekstrak

$$\text{F1} = \frac{10}{100} \times 50 \text{ ml} = 5 \text{ gr}$$

$$\text{F2} = \frac{15}{100} \times 50 \text{ ml} = 7,5 \text{ gr}$$

$$\text{F3} = \frac{20}{100} \times 50 \text{ ml} = 10 \text{ gr}$$

c. Perhitungan Maserasi

Perbandingan 1:6

Ekstrak Daun Pepaya = 300 gram

Etanol = 70%

$$\begin{aligned}\text{Vol Pelarut} &= \text{Berat Bahan} \times 6 \\ &= 300 \text{ gr} \times 6 = 1800 \text{ ml}\end{aligned}$$

d. Perhitungan Bobot Jenis

Dik =

$W_1 = 22,1 \text{ gr}$

$F_0 = 52,2 \text{ gr}$

$F_1 = 52,3 \text{ gr}$

$F_2 = 52,4 \text{ gr}$

$F_3 = 52,5 \text{ gr}$

W_1 = Berat piknometer kosong (gram)

W_2 = Berat piknometer berisi sampel

V = Volume piknometer (25 ml)

Rumus penentuan berat jenis

$$BJ = \frac{W_2 - W_1}{V}$$

1) Formula 0

$$BJ = \frac{W_2 - W_1}{V}$$

$$BJ = \frac{52,2 - 22,1}{25}$$

$$BJ = 1,2 \text{ g/ml}$$

2) Formula 1

$$BJ = \frac{W_2 - W_1}{V}$$

$$BJ = \frac{52,3 - 22,1}{25}$$

$$BJ = 1,2 \text{ g/ml}$$

3) Formula 2

$$BJ = \frac{W2-W1}{V}$$

$$BJ = \frac{52,4-22,1}{25}$$

$$BJ = 1,2 \text{ g/ml}$$

4) Formula 3

$$BJ = \frac{W2-W1}{V}$$

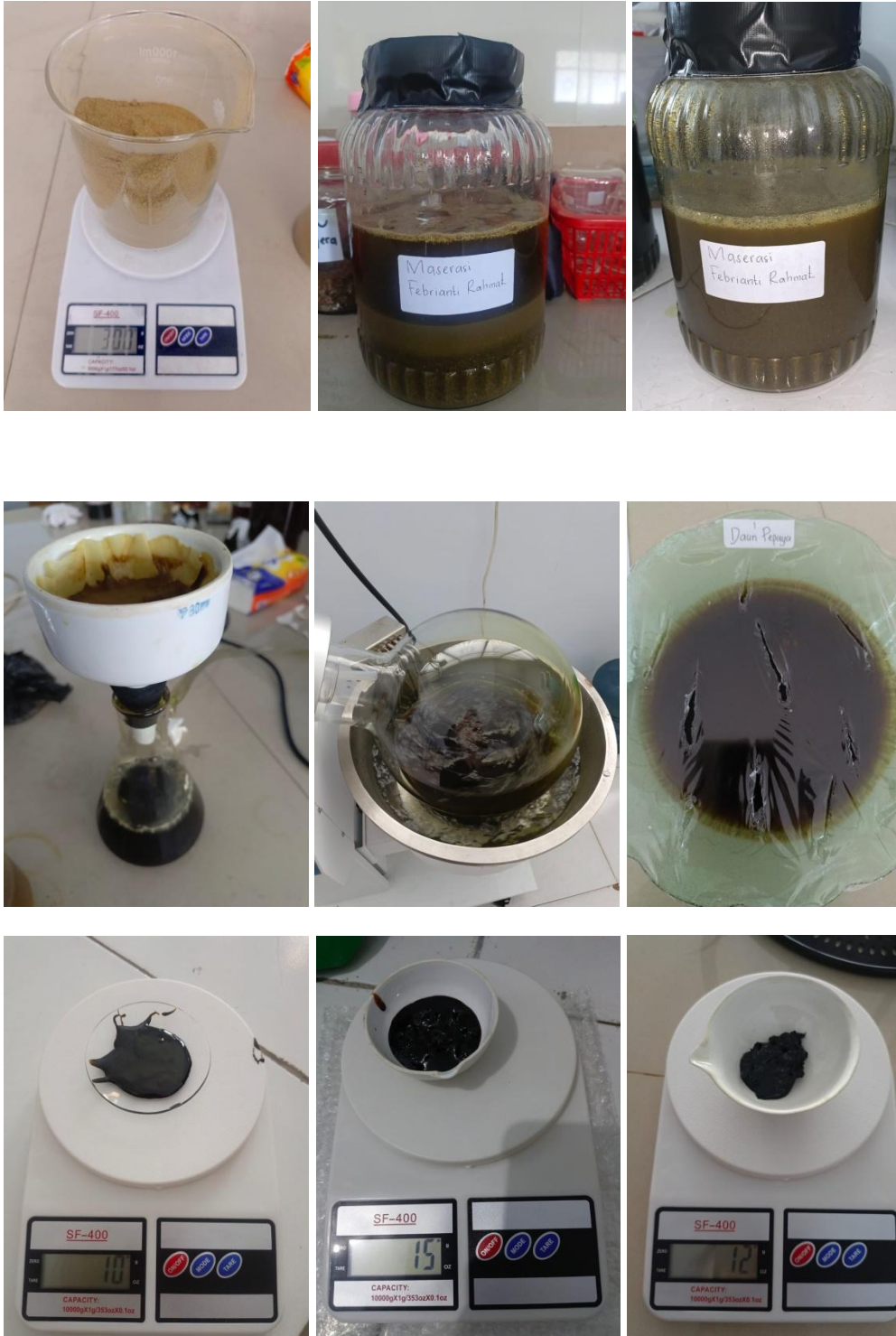
$$BJ = \frac{52,5-22,1}{25}$$

$$BJ = 1,2 \text{ g/ml}$$

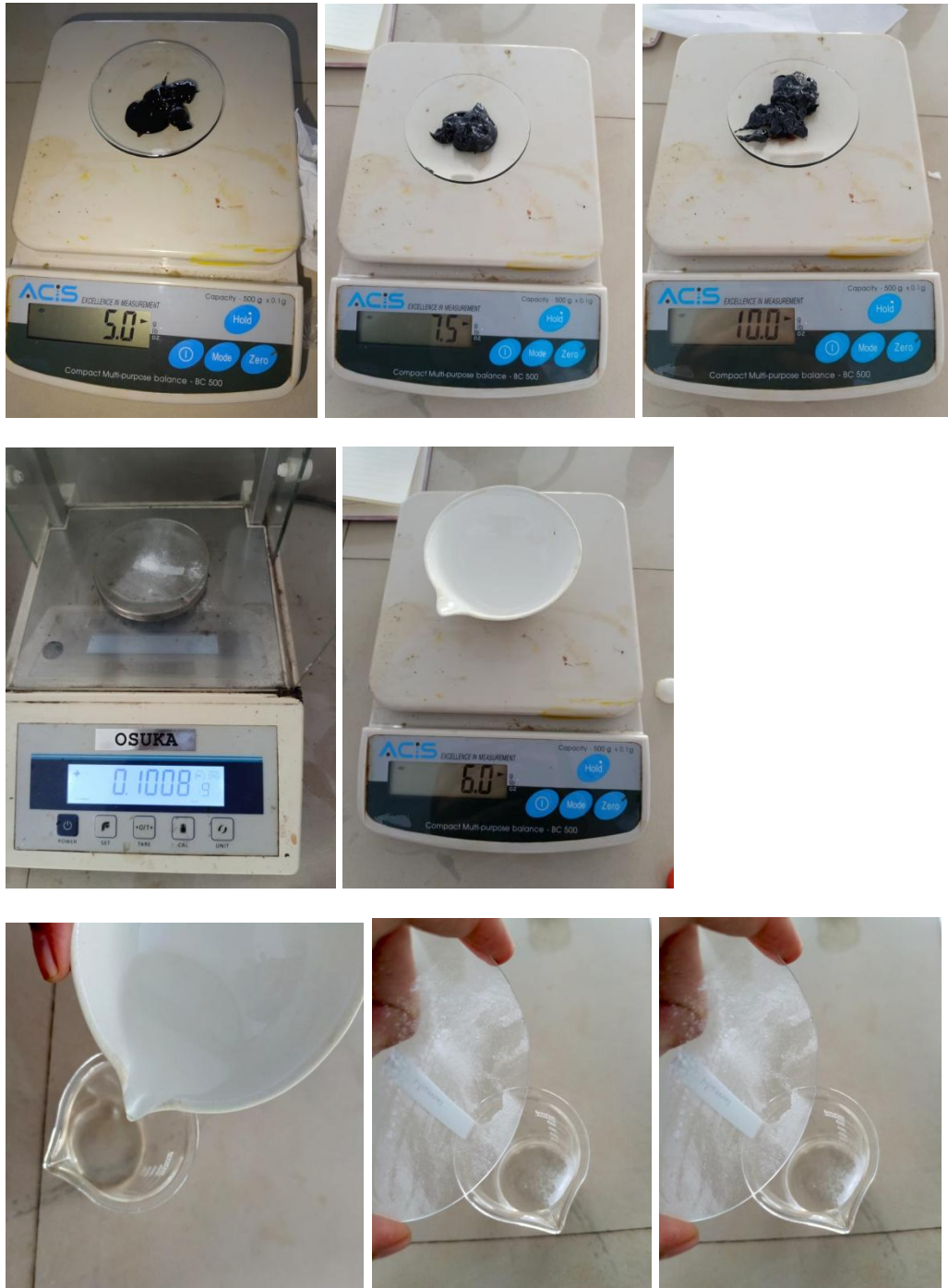
Lampiran 3. Dokumentasi Preparasi Sampel Daun Pepaya



Lampiran 4. Dokumentasi Maserasi dan Sampel



Lampiran 5. Dokumentasi Cara Pembuatan Sediaan Sirup





Lampiran 6. Dokumentasi Uji Stabilitas Fisik

1. Uji Bobot Jenis

Formula	Gambar
Piknometer kosong	

Formula 0	
Formula 1	
Formula 2	
Formula 3	

2. Uji Ph

Formula	Gambar
Formula 0	

Formula 1		
Formula 2		
Formula 3		

3. Uji Viskositas

Formula	Gambar
Formula 0	

Formula 1	
Formula 2	
Formula 3	

4. Uji Homogenitas

Formula	Gambar
Formula 0	

Formula 1			
Formula 2			
Formula 3			

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Febrianti Rahmat

(1) Naskah FEBRIANTI RAHMAT

 Farmasi

 Fak. Ilmu Kesehatan

 LLDIKTI IX Turnitin Consortium Part III

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29/6-26

Febrianti Rahmat

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