

Lampiran 1. Perhitungan rendaman ekstrak

Menurut Saerang et al, (2023) Rendemen ekstrak dihitung berdasarkan perbandingan berat akhir (bobot ekstrak yang dihasilkan) dengan berat awal (bobot serbuk simplisia yang digunakan) dikalikan 100% ,Sehingga rendemen ekstrak yang didapat sebagai berikut:

Dik : berat simplisia daun belimbing wuluh = 250 gr
berat ekstrak kental daun belimbing = 20,3 gr

Dit : % Rendaman ?

Peny :

$$\% \text{Rendaman} = \frac{\text{berat simplisia}}{\text{berat ekstrak}} \times 100\%$$

$$\% \text{Rendaman} = \frac{20,3 \text{ gr}}{250 \text{ gr}} \times 100\%$$

$$\% \text{ Rendaman} = 8,12 \%$$

Perhitungan rendemen ekstrak dikatakan baik apabila nilai rendemen ekstrak yang diperoleh lebih dari 10% (Kemenkes RI, 2017).

Lampiran 2. Perhitungan formula pembuatan *Hydrocolloid patch*

1. Formula I (5%)

$$\text{ekstrak daun belimbing wuluh} = \frac{5}{100} \times 30 \text{ ml} = 1,5 \text{ g}$$

$$\text{Gelatin} = \frac{25}{100} \times 30 \text{ ml} = 7,5 \text{ g}$$

$$\text{Metil paraben} = \frac{0,02}{100} \times 30 \text{ ml} = 0,06 \text{ g}$$

$$\text{Gliserin} = \frac{10}{100} \times 30 \text{ ml} = 3 \text{ g}$$

$$\begin{aligned} \text{Aquadest 100 ml} &= 30 - (1.5+7.5+0.06+3) \\ &= 30 - 12,06 \\ &= 17.94 \text{ ml} \\ &= 18 \text{ ml} \end{aligned}$$

$$\text{Etanol 70 \%} = \text{q.s}$$

2. Formula II (7.5%)

$$\text{ekstrak daun belimbing wuluh} = \frac{7,5}{100} \times 30 \text{ ml} = 2.25 \text{ g}$$

$$\text{Gelatin} = \frac{25}{100} \times 30 \text{ ml} = 7.5 \text{ g}$$

$$\text{Metil paraben} = \frac{0,02}{100} \times 30 \text{ ml} = 0.06 \text{ g}$$

$$\text{Gliserin} = \frac{10}{100} \times 30 \text{ ml} = 3 \text{ g}$$

$$\begin{aligned} \text{Aquadest 100 ml} &= 30 - (2.25+7.5+0.06+3) \\ &= 30 - 12.81 \\ &= 17.19 \text{ ml} \\ &= 17 \text{ ml} \end{aligned}$$

$$\text{Etanol 70 \%} = \text{q.s}$$

3. Formula III (10%)

$$\text{ekstrak daun belimbing wuluh} = \frac{10}{100} \times 30 \text{ ml} = 3 \text{ g}$$

$$\text{Gelatin} = \frac{25}{100} \times 30 \text{ ml} = 7.5 \text{ g}$$

$$\text{Metil paraben} = \frac{0.02}{100} \times 30 \text{ ml} = 0.06 \text{ g}$$

$$\text{Gliserin} = \frac{10}{100} \times 30 \text{ ml} = 3 \text{ g}$$

$$\text{Aquadest 100 ml} = 30 - (3 + 7.5 + 0.06 + 3)$$

$$= 30 - 12.06$$

$$= 16.44 \text{ ml}$$

$$= 16 \text{ ml}$$

$$\text{Etanol 70 \%} = \text{q.s}$$

Lampiran 3. Perhitungan zona hambat *Hydrocolloid patch*

1. Formula 5%

$$\begin{aligned} A1 &= \frac{1+1}{2} \\ &= 1 \times 10 \\ &= 10 \text{ mm} \end{aligned}$$

$$\begin{aligned} A2 &= \frac{1+1}{2} \\ &= 1 \times 10 \\ &= 10 \text{ mm} \end{aligned}$$

$$\begin{aligned} A3 &= \frac{1,2+1,4+1,4+1,2}{4} \\ &= 1,3 \times 10 \\ &= 13 \text{ mm} \end{aligned}$$

Rata rata diameter zona hambat :

$$\begin{aligned} &= \frac{A1+A2+A3}{3} \\ &= \frac{10+10+13}{3} \\ &= 11 \text{ mm} \end{aligned}$$

2. Formula 7.5%

$$\begin{aligned} B1 &= \frac{1,4+1+1+1,4}{2} \\ &= 1,2 \times 10 \\ &= 12 \text{ mm} \end{aligned}$$

$$\begin{aligned} B2 &= \frac{1+1}{2} \\ &= 1 \times 10 \\ &= 10 \text{ mm} \end{aligned}$$

$$\begin{aligned} B3 &= \frac{1,3+1,4+1,3+1,3}{4} \\ &= 1,3 \times 10 \\ &= 13 \text{ mm} \end{aligned}$$

Rata rata diameter zona hambat :

$$\begin{aligned}
 &= \frac{B1+B2+B3}{3} \\
 &= \frac{12+10+13}{3} \\
 &= 11.7 \text{ mm}
 \end{aligned}$$

3. Formula 10%

$$\begin{aligned}
 C1 &= \frac{2.2+1.3+1.7+2}{4} \\
 &= 1.8 \times 10 \\
 &= 18 \text{ mm}
 \end{aligned}$$

$$\begin{aligned}
 C2 &= \frac{1.3+1.2+1.2+1.5}{4} \\
 &= 1.3 \times 10 \\
 &= 13 \text{ mm}
 \end{aligned}$$

$$\begin{aligned}
 C3 &= \frac{1.3+1+1+1}{4} \\
 &= 1.1 \times 10 \\
 &= 11 \text{ mm}
 \end{aligned}$$

Rata rata diameter zona hambat :

$$\begin{aligned}
 &= \frac{C1+C2+C3}{3} \\
 &= \frac{18+13+11}{3} \\
 &= 14 \text{ mm}
 \end{aligned}$$

Lampiran 4. Proses preparasi sampel ekstrak daun belimbing wuluh

Keterangan	gambar
Pengambilan sampel daun belimbing wuluh	
Daun dibersihkan menggunakan air mengalir	
Daun dipotong kecil kecil	

Daun dikeringkan dengan matahari tidak dan ditutupi kain hitam	
Blender simplisia sampai jadi serbuk	

Lampiran 5. Gambar maserasi ekstrak daun belimbing wuluh

keterangan	gambar
serbuk ekstrak daun belimbing wuluh	
rendaman ekstrak daun belimbing wuluh	
penyaringan ekstrak daun belimbing wuluh	

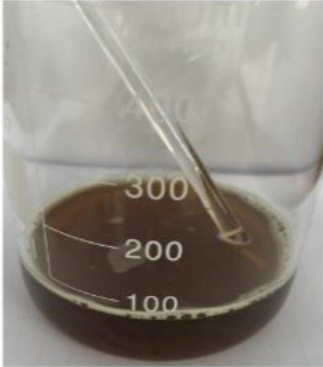
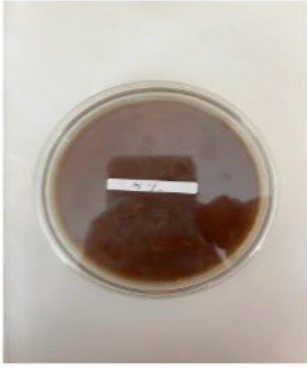
penguapan ekstrak
daun helimbing wuluh

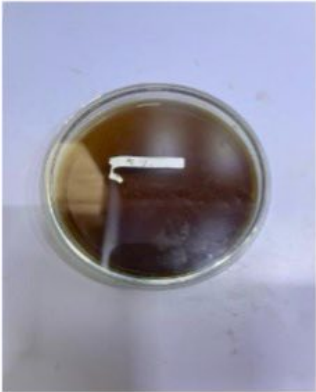
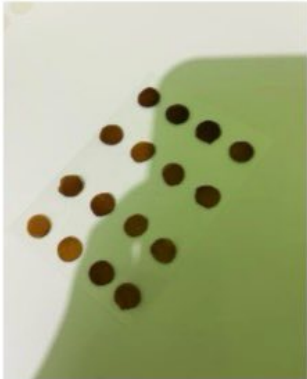


ekstrak kental
daun belimbing wuluh

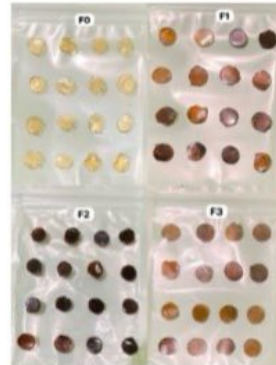


Lampiran 6. Gambar pembuatan sediaan *Hydrocolloid patch*

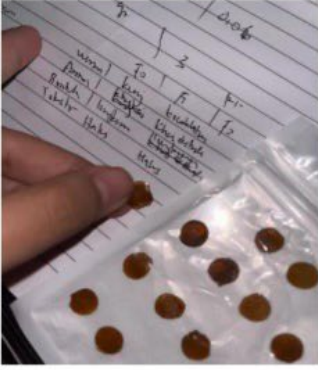
keterangan	gambar
ekstrak dilarutkan dengan 1 ml Aquadest	
pencampuran bahan	
ratakan dalam cawan petri lalu dimasukkan dalam kulkas selama 20 jam	

setelah di oven selama 5 jam	
dicetak bentuk lingkaran	
tempelkan ke PU	
masukkan dalam plastik ziplock	

Hasil sediaan *Hydrocolloid patch*



Lampiran 7. gambar uji stabilitas fisik sediaan *Hydrocolloid patch*

keterangan	gambar
uji organoleptik	
uji ketebalan	
uji keseragaman bobot	

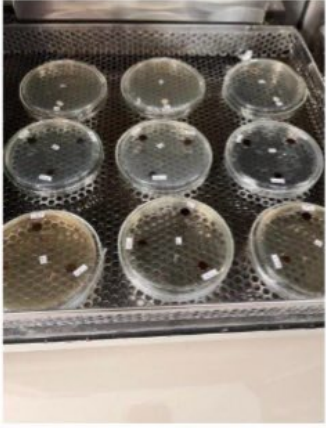
uji kelembapan	 A petri dish containing several white moisture test strips. Some strips are labeled with handwritten numbers like '7.5%', '10%', and 'C'. There are also some brown spots on the strips, indicating moisture presence.
uji daya lipat	 A close-up image of a strip of material being folded over itself, demonstrating its flexibility or tensile strength.
uji pH	 A pH test strip from a NESCO pH 0-14 test kit. The strip is held by a white plastic holder and is being dipped into a liquid. The color of the strip is changing from yellow to orange, indicating a pH value.

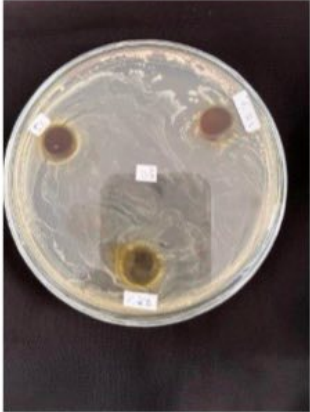
Lampiran 8. uji hedonik dan iritasi

keterangan	gambar
uji hedonik	
uji iritasi	

Lampiran 9. Gambar uji aktivitas antibakteri

keterangan	gambar
sterilkan alat dan bahan	
pembuatan media	
inokulasi bakteri	

masukkan di inkubator selama 1x24 jam	
pengujian aktivitas antibakteri secara difusi	
di inkubasi secara terbalik di inkubator selama 1x24 jam	

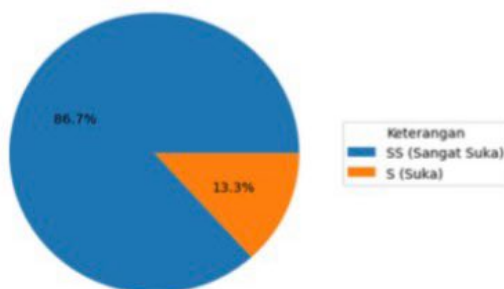
amati zona hambat yang terbentuk dan hitung diameter zona hambat nya	 A petri dish containing a bacterial culture on agar. There are four distinct, circular, clear zones of inhibition, each labeled with a small white tag. The zones are arranged in a square pattern, with one at the top-left, one at the top-right, one at the bottom-left, and one at the bottom-right. The agar surface is slightly textured, and the background is dark.
sterilisasikan alat kembali sebelum disimpan	 A stainless steel autoclave is shown on a tiled floor. The autoclave is a rectangular unit with a control panel on the right side featuring several red buttons and a digital display. A black power cord is plugged into the back. The autoclave is open, and a clear plastic bag containing a piece of equipment is visible inside. The background is a light-colored tiled wall.

Lampiran 10. Diagram uji hedonika. Formulasi F0 *Hydrocolloid patch*

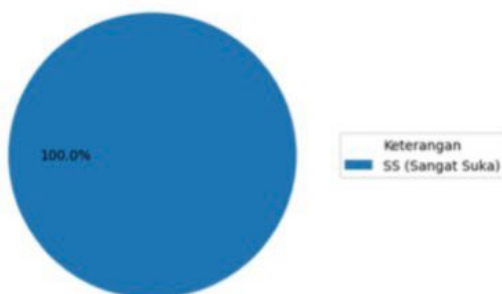
Penilaian dari segi warna sediaan *Hydrocolloid patch*
15 responden



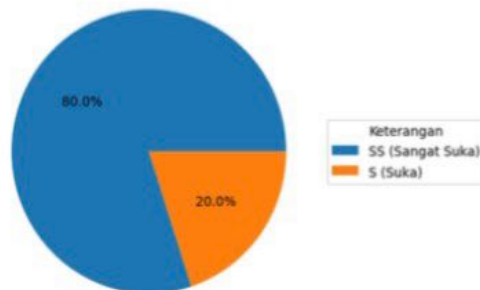
Penilaian dari segi bau sediaan *Hydrocolloid patch*
15 responden



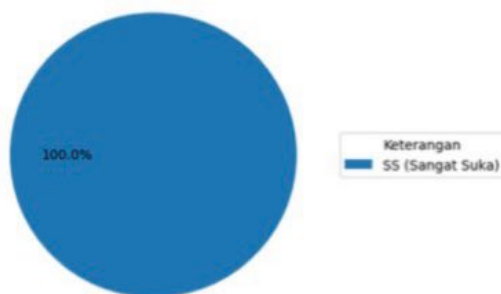
Penilaian dari segi tekstur sediaan *Hydrocolloid patch*
15 responden



Penilaian dari segi kemudahan menempel sediaan *Hydrocolloid patch*
15 responden

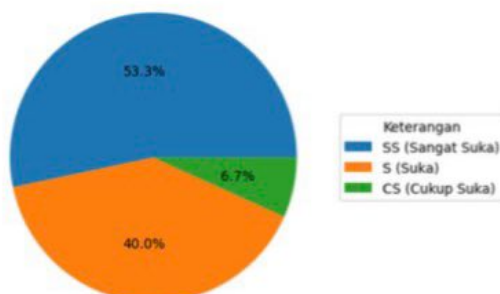


Penilaian dari segi kehalusan sediaan *Hydrocolloid patch*
15 responden



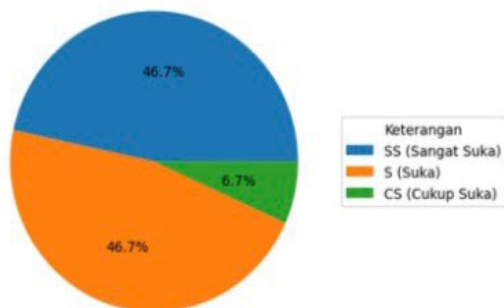
b. Formulasi F1 *Hydrocolloid patch*

Penilaian dari segi warna sediaan *Hydrocolloid patch*
15 responden



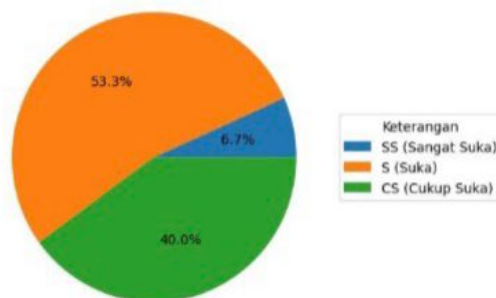
Penilaian dari segi bau sediaan *Hydrocolloid patch*

15 responden



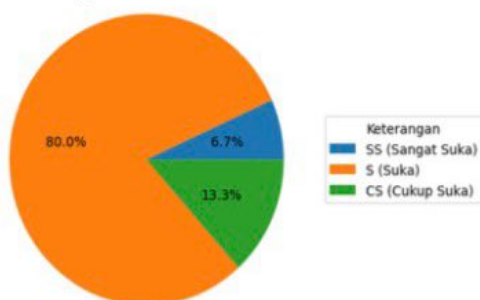
Penilaian dari segi tekstur sediaan *Hydrocolloid patch*

15 responden

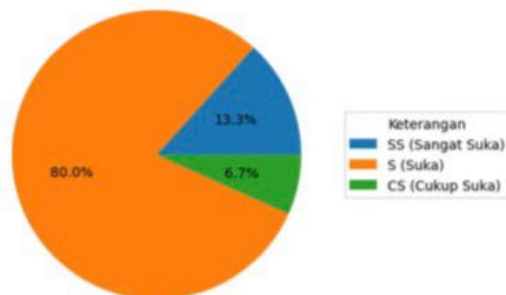


Penilaian dari segi kemudahan menempel sediaan *Hydrocolloid patch*

15 responden

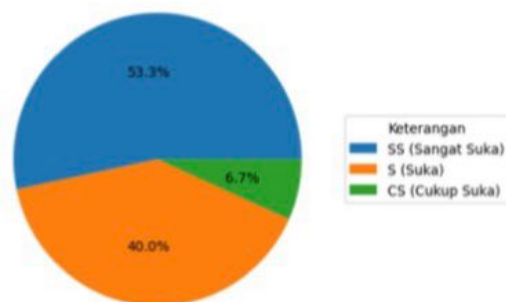


Penilaian dari segi kehalusan sediaan *Hydrocolloid patch*
15 responden

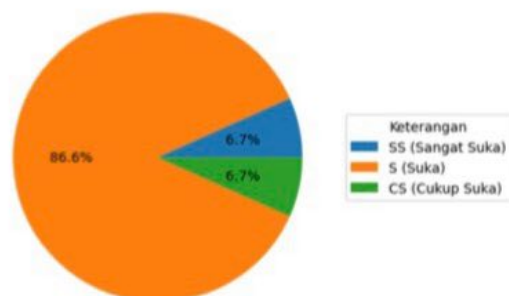


c. Formulasi F2 *Hydrocolloid patch*

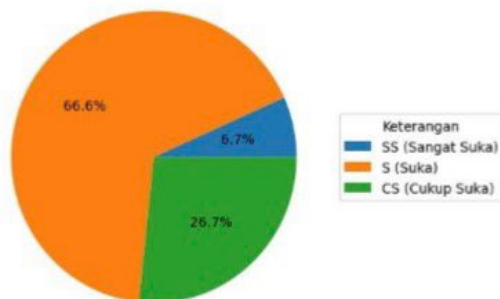
Penilaian dari segi warna sediaan *Hydrocolloid patch*
15 responden



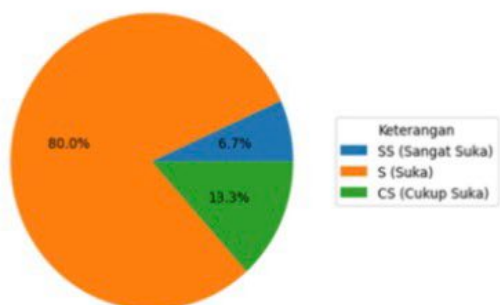
Penilaian dari segi bau sediaan *Hydrocolloid patch*
15 responden



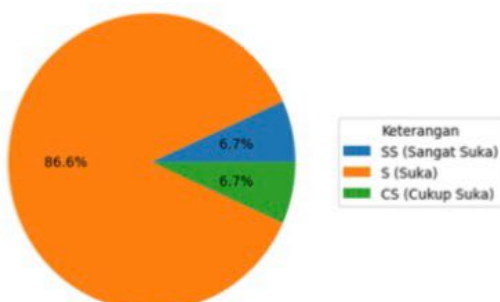
Penilaian dari segi tekstur sediaan *Hydrocolloid patch*
15 responden



Penilaian dari segi kemudahan menempel sediaan *Hydrocolloid patch*
15 responden



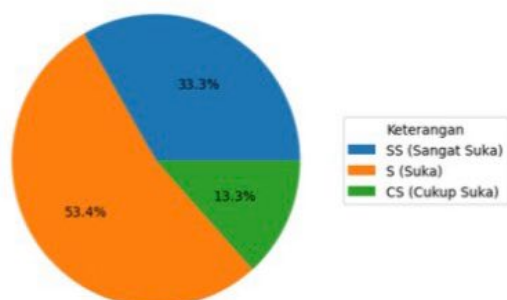
Penilaian dari segi kehalusan sediaan *Hydrocolloid patch*
15 responden



d. Formulasi F3 *Hydrocolloid patch*

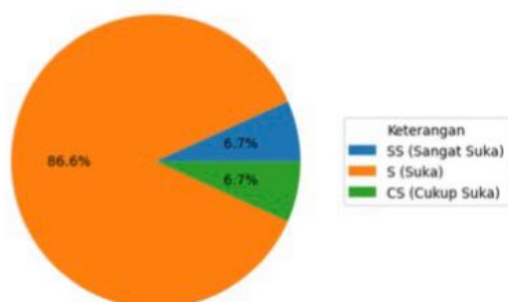
Penilaian dari segi warna sediaan *Hydrocolloid patch*

15 responden



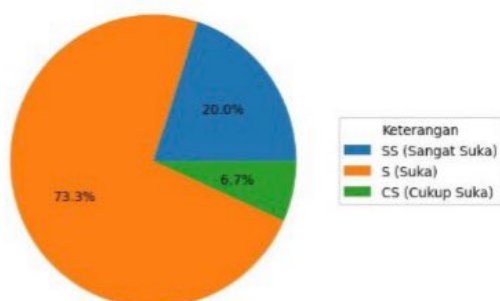
Penilaian dari segi bau sediaan *Hydrocolloid patch*

15 responden

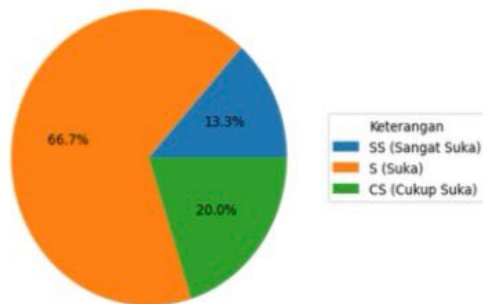


Penilaian dari segi tekstur sediaan *Hydrocolloid patch*

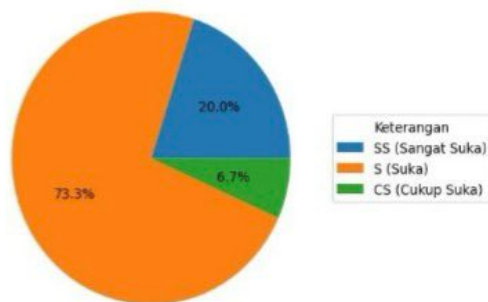
15 responden



Penilaian dari segi kemudahan menempel sediaan *Hydrocolloid patch*
15 responden



Penilaian dari segi kehsalusan sediaan *Hydrocolloid patch*
15 responden



Lampiran 11. Surat Izin Penelitian

SURAT IZIN PENELITIAN

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

Nama : Marsya Agniantis

NIM : 211320007

Dapat melaksanakan penelitian di Laboratorium Tekno, kimia, Mikro, Fakultas Farmasi
Universitas Muhammadiyah Palopo.

Palopo, 8 Desember 2020


an 
Apt. Andi Sry Hardiyanti, S.Farm., M.Farm.
NUPTR 4049774675230303

Lampiran 12. Kode Etik

Lembaga Penelitian dan Pengabdian kepada Masyarakat
Universitas Muhammadiyah Palopo
Institution of Research and Community Services
Muhammadiyah University Palopo

KETERANGAN LAYAK PENELITIAN
ETHICAL APPROVAL LETTER
 Nomor/Number: 120/KEP/III.3.AU/F/2026

Komisi Etik Penelitian Universitas Muhammadiyah Palopo, setelah mempelajari dan melakukan kajian etik secara seksama usulan rancangan penelitian, dengan ini menyatakan bahwa penelitian dengan:

The Research Ethics Commission of Muhammadiyah University Palopo, having thoroughly scrutinized and completed ethical reviews on the research plan proposal, hereby certifies that:

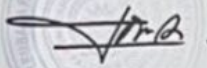
Judul : Inovasi Sediaan Hydrocolloid Patch Berbasis Ekstrak Daun Belimbing Wuluh (*Averrhoa Bilimbi* L) Sebagai Penghambat Pertumbuhan Jerawat

Title : Innovation in Hydrocolloid Patch Preparations Based on Starfruit Leaf Extract (*Averrhoa Bilimbi* L) as an Acne Growth Inhibitor

Researcher : 1. Marsya Apriliandis
 2. Apt. Ervianingsih, S. Farm., M.Si
 3. Rahmawati Nur Annisa, S.Si., M.Si

Dengan ini menyatakan bahwa protokol tersebut DITERIMA
 Hereby declares that the protocol is APPROVED

Palopo, 10 Maret 2026
 Ketua / Chairman



Junaidi, S.E., M.Ak., Ph.D.
 NIDN.0910067705

Lampiran 13. Surat Selesai Penelitian


PIMPINAN PUSAT MUHAMMADIYAH
MAJELIS PENDIDIKAN TINGGI, PENELITIAN, DAN PENGEMBANGAN
UNIVERSITAS MUHAMMADIYAH PALOPO
FAKULTAS ILMU KESEHATAN
PROGRAM STUDI FARMASI
LABORATORIUM FARMASI
 Kampus: Jl. Jenderal Sudirman Km. 3 Binturu Kota Palopo
 Telp/Fax. (0471) 327429 Email: institusi@umpalopo.ac.id
 Website: <http://www.umpalopo.ac.id>

SURAT KETERANGAN
NOMOR: 005KET/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 : Marsya Apriliandis
 Nim : 221320007
 Judul : Inovasi Sediaan Hydrocolloid patch berbasis ekstrak daun belimbing wuluh (*Averrhoa bilimbi* L.) sebagai Penghambat Pertumbuhan Bakteri
 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, 25 Mei 2026
 Ketua Program Studi Farmasi

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

Lampiran 14. Lembar Konsultasi

KONSULTASI DAN MONITORING KARYA TULIS ILMIAH

Nama	Marsya Aprilandis		
Nomor Induk Mahasiswa	221320007		
Program Studi	SI FARMASI		
Nama Dosen Pembimbing	1. Apt. Ervianingsih, S.Farm., M.Si 2. Rahmawati Nur Annisa, S.Si., M.Si		
Tanggal Berita Acara			
Judul Karya Tulis Ilmiah: Inovasi sediaan <i>Hydrocolloid patch</i> berbasis ekstrak daun belimbing wuluh (<i>Averrhoa bilimbi L.</i>) sebagai penghambat pertumbuhan jerawat			
No	Tanggal	Arahan Pembimbing/Prodi	Tanda Tangan Pembimbing
1.	20/04/2026	konsu	Rauf
2.	22/24/2026	Revisi data data	Rauf
3/4	23/04/2026	Revisi	Rauf
4	30/04/2026	Revisi Acc	Rauf

Ket: *) Melampirkan bukti bimbingan jika tanpa tatap muka.

Cat: Halaman berikutnya mulai dari judul kolom, dapat ditambah sesuai kebutuhan.

Palopo,

Ketua Program Studi Ilmu.....

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