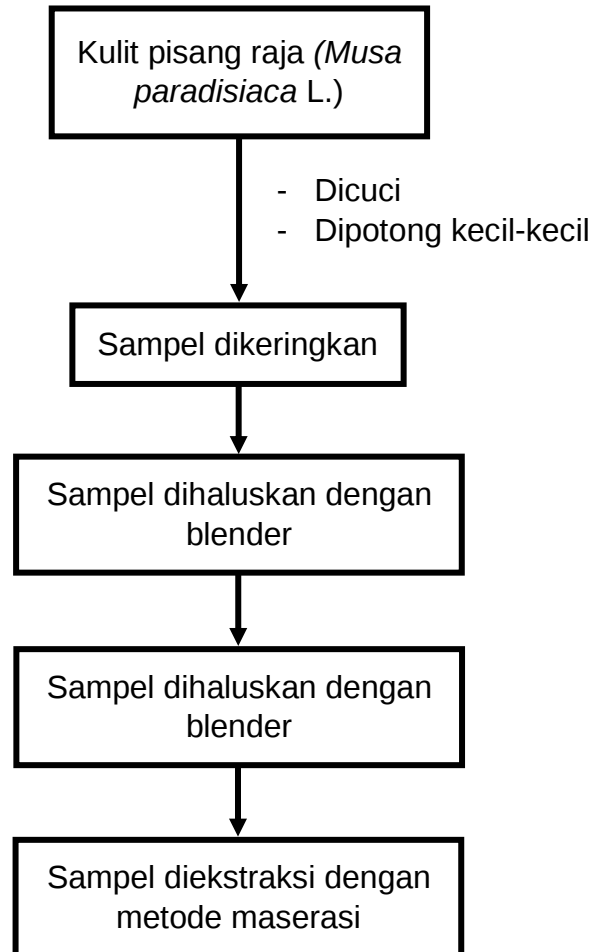


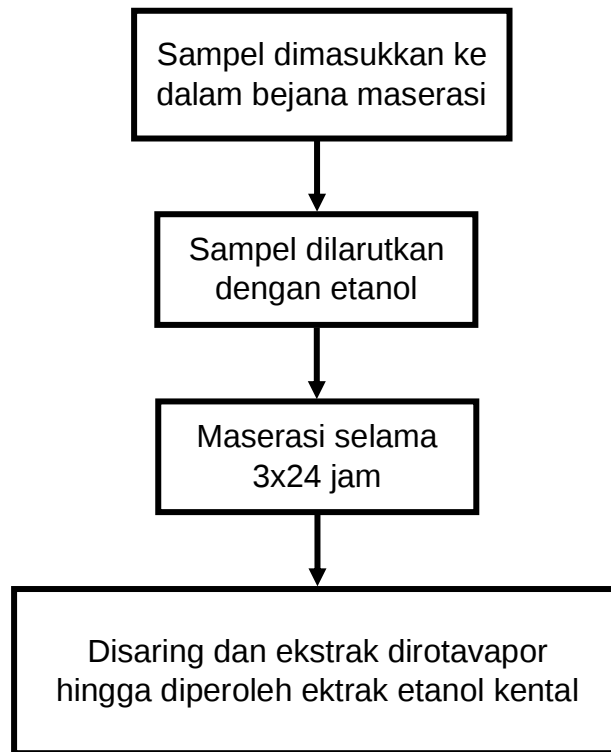
LAMPIRAN

Lampiran 1. Skema Kerja

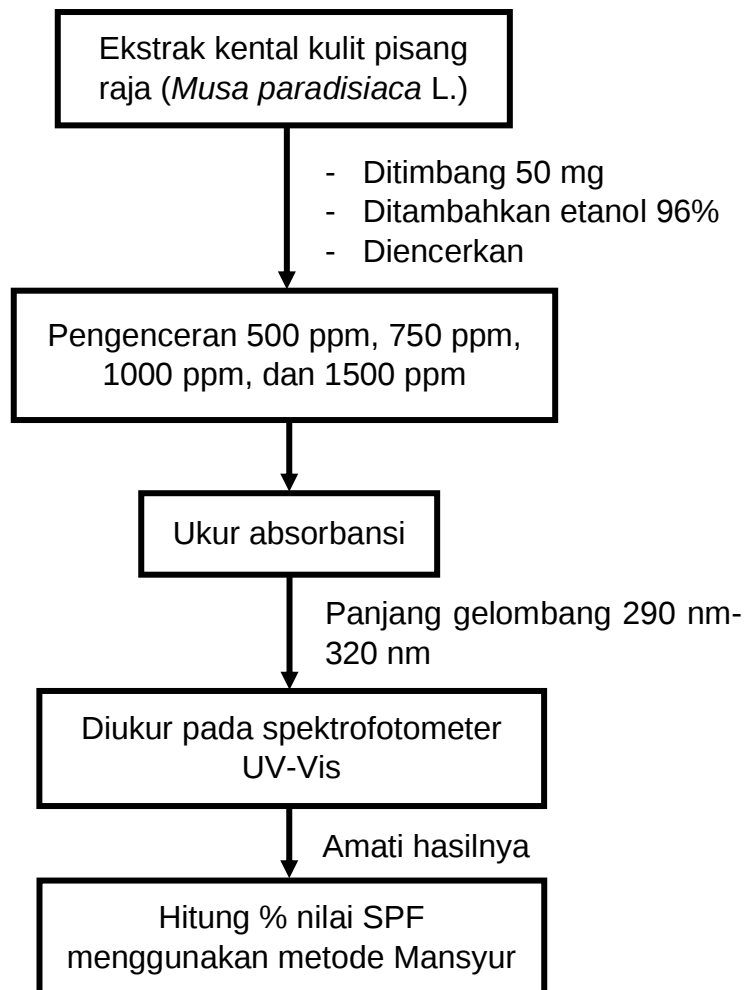
1. Pengolahan Sampel



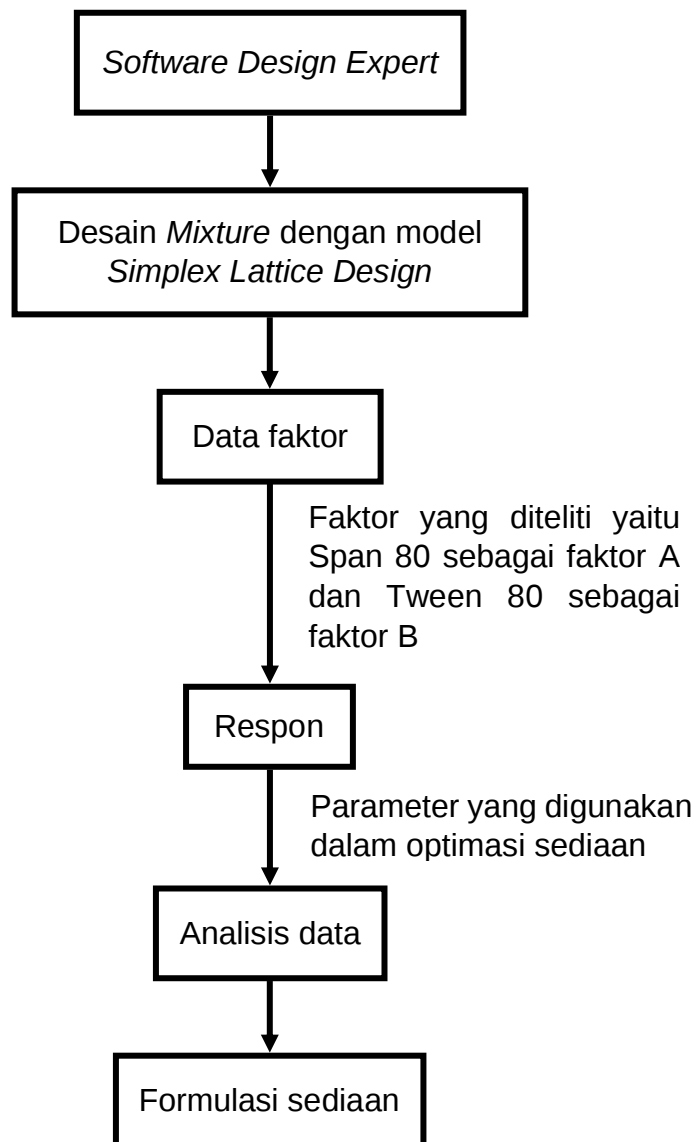
2. Ekstraksi Sampel



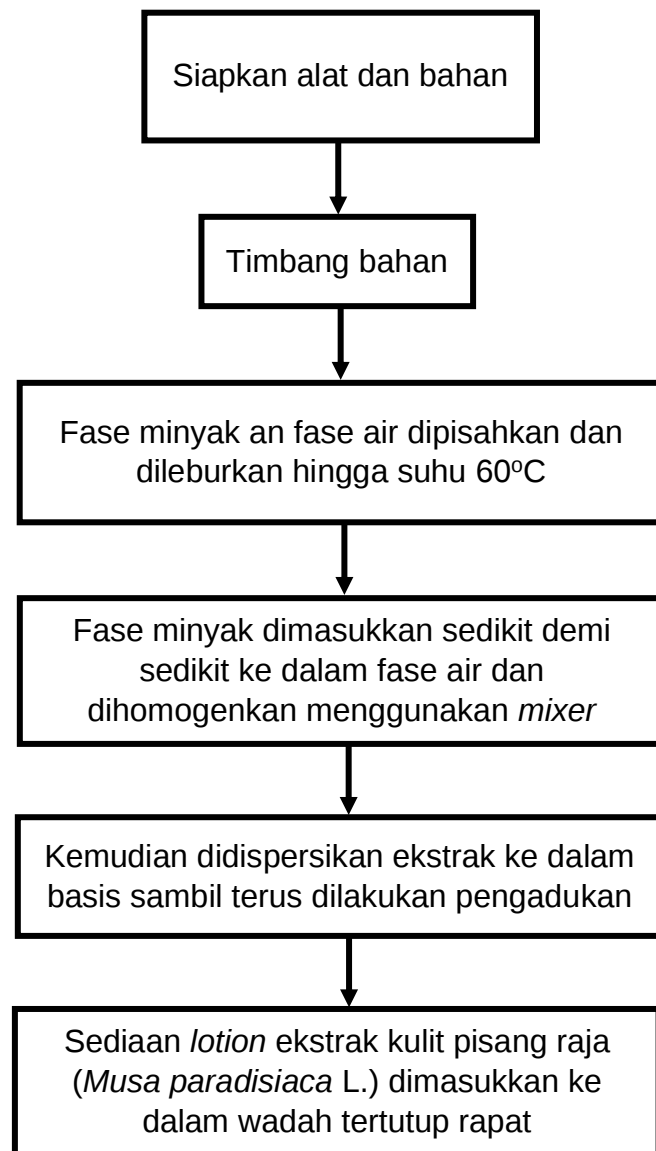
3. Penentuan Nilai SPF Ekstrak



4. Optimasi Formula

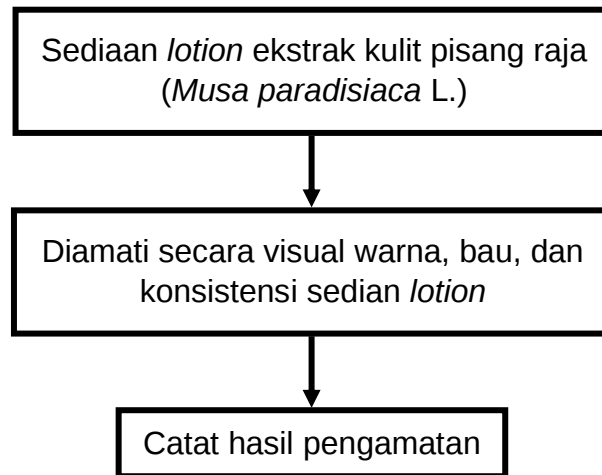


5. Pembuatan Sediaan

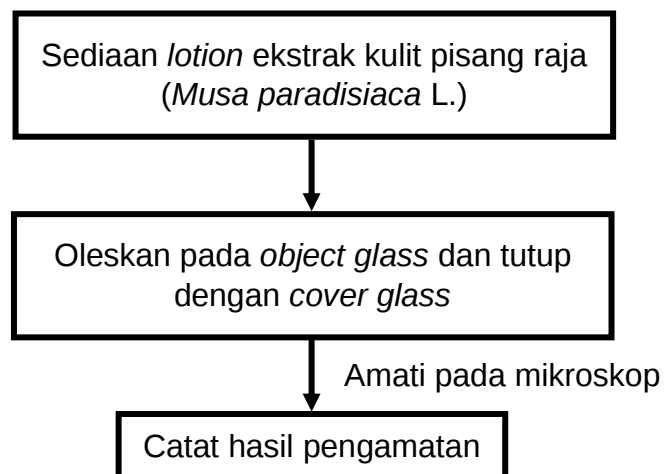


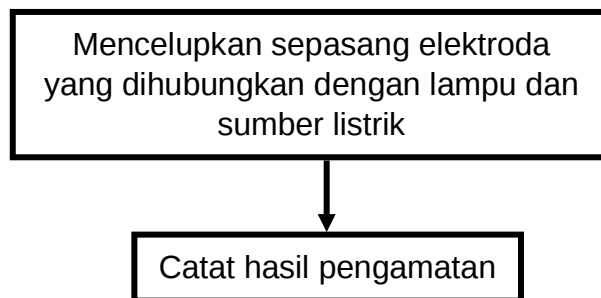
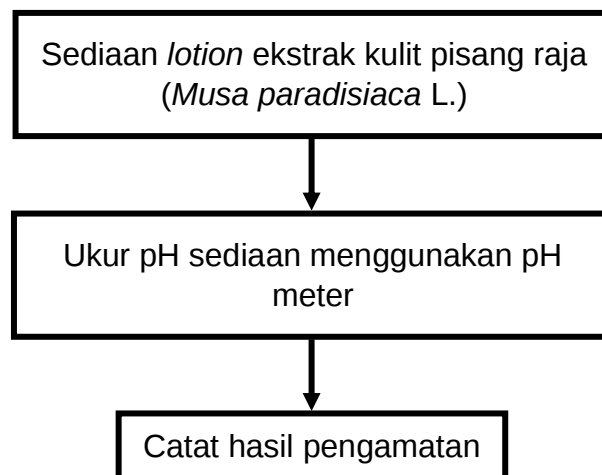
6. Evaluasi Sediaan

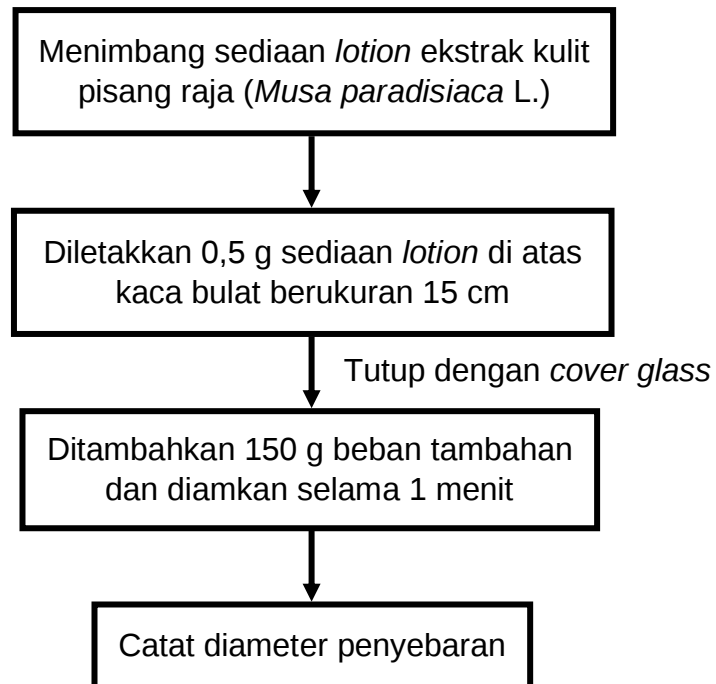
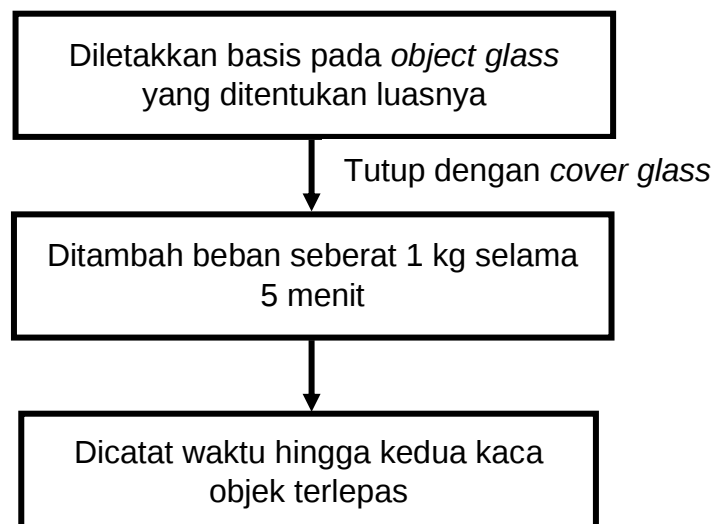
a. Uji Organoleptik

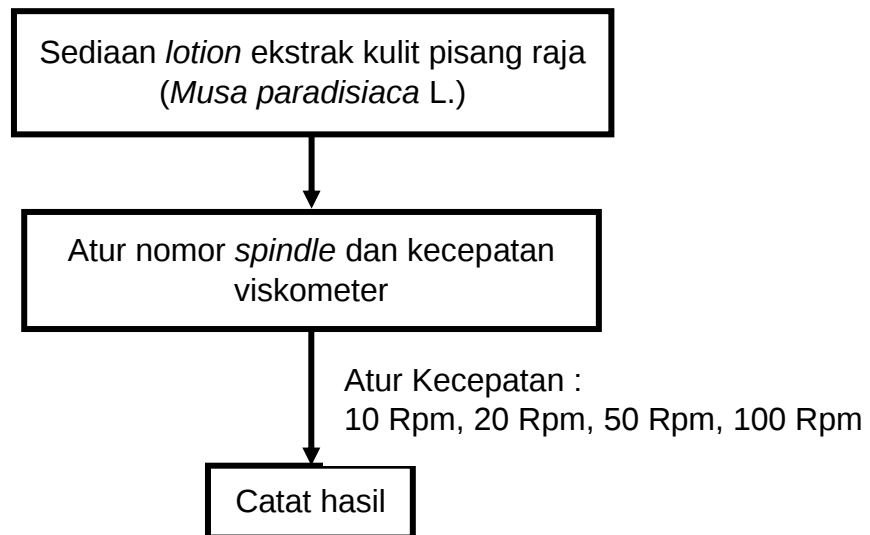
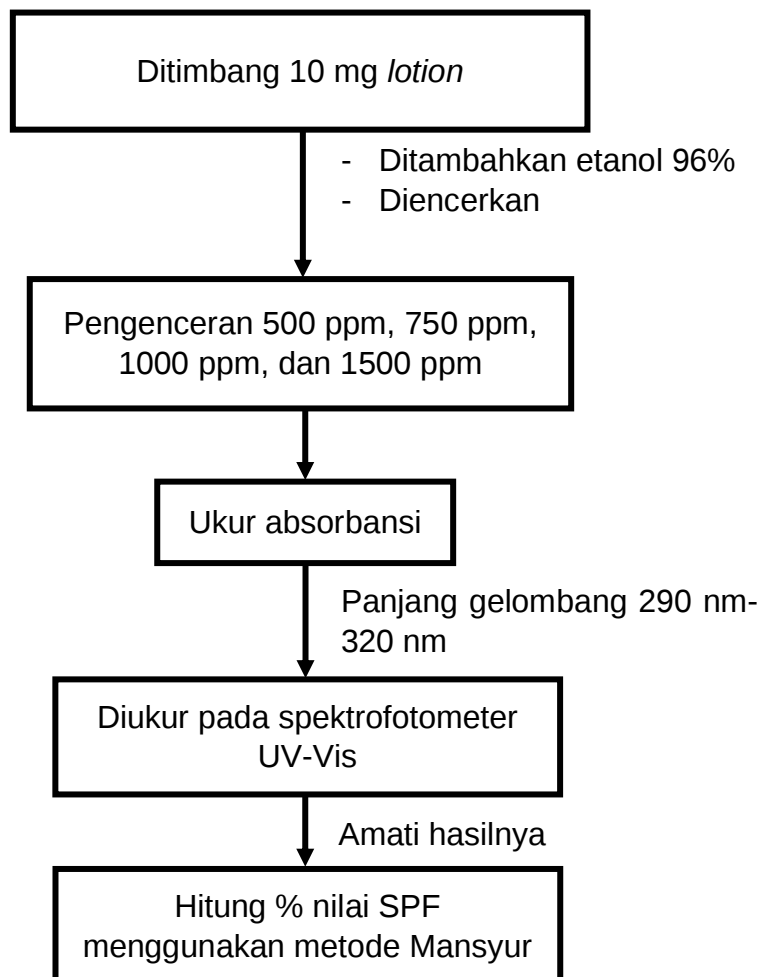


b. Uji Homogenitas

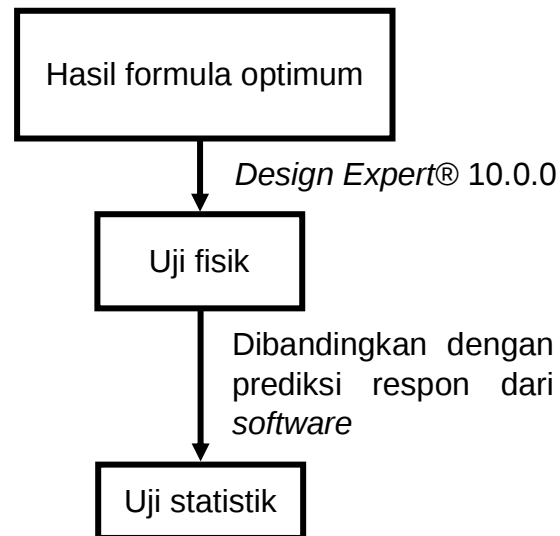


c. Uji Tipe Emulsi**1) Dispersi Warna****2) Metode Konduktivitas****d. Uji pH**

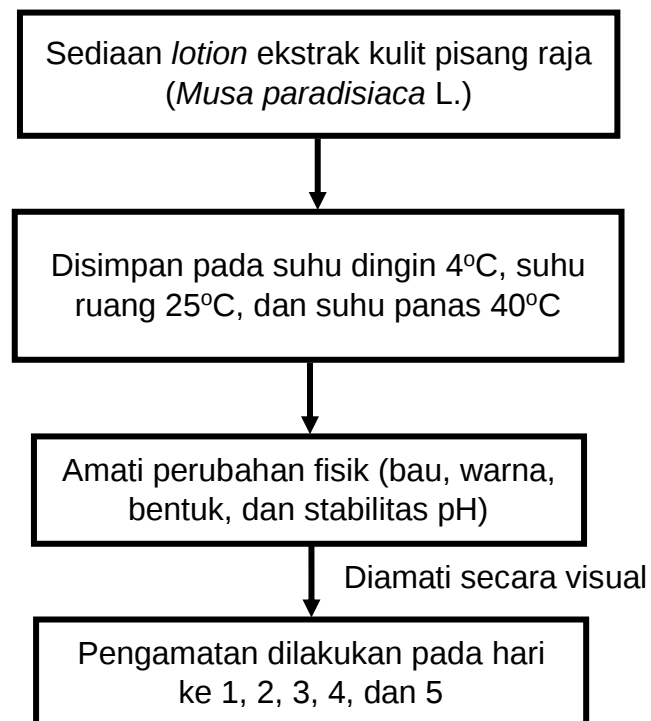
e. Uji Daya Sebar**f. Uji Daya Lekat**

g. Uji Viskositas**h. Penentuan Nilai SPF**

7. Verifikasi Respon *Simplex Lattice Design*



8. Uji Stabilitas



Lampiran 2. Perhitungan Persen Rendamen Ekstrak

Rumus dan Perhitungan Persen Rendamen Ekstrak Kulit Pisang Raja

$$\begin{aligned}\% \text{ Rendamen} &= \frac{\text{Berat Ekstrak Yang Di Dapat}}{\text{Berat Simplisia Yang Digunakan}} \times 100\% \\ &= \frac{146,8 \text{ g}}{3600 \text{ g}} \times 100\% \\ &= 4,07 \%\end{aligned}$$

Lampiran 3. Perhitungan bahan

Tabel 14. Perhitungan emulgator

Formulasi	Span 80 (%)	Tween 80 (%)
1 (3:7)	$\frac{3 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 3,3 \text{ g}$	$\frac{7 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 7 \text{ g}$
2 (5:5)	$\frac{5 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 5,5 \text{ g}$	$\frac{5 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 5,5 \text{ g}$
3 (5:5)	$\frac{5 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 5,5 \text{ g}$	$\frac{5 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 5,5 \text{ g}$
4 (9:1)	$\frac{9 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 9,9 \text{ g}$	$\frac{1 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 1,1 \text{ g}$
5 (7:3)	$\frac{7 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 7,7 \text{ g}$	$\frac{3 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 3,3 \text{ g}$
6 (9:1)	$\frac{9 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 9,9 \text{ g}$	$\frac{1 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 1,1 \text{ g}$
7 (1:9)	$\frac{1 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 1,1 \text{ g}$	$\frac{9 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 9,9 \text{ g}$
8 (1: 9)	$\frac{1 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 1,1 \text{ g}$	$9 \frac{\text{g}}{100 \text{ mL}} \times 110 \text{ mL} = 9,9 \text{ g}$

Tabel 15. Perhitungan zat tambahan lainnya

Bahan	Konsentrasi (%)	Perhitungan
Ekstrak kulit pisang raja	1,5	$\frac{1,5 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 1,65 \text{ g}$
Setil alkohol	5	$\frac{5 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 5,5 \text{ g}$
Gliserin	10	$\frac{10 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 11 \text{ g}$
Propilen glikol	10	$\frac{10 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 11 \text{ g}$
Propilen paraben	0,02	$\frac{0,02 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 0,022 \text{ g}$
Metil paraben	0,18	$\frac{0,18 \text{ g}}{100 \text{ mL}} \times 110 \text{ mL} = 0,198 \text{ g}$
Aquadest	ad 100 mL	ad 100 mL

Lampiran 4. Perhitungan Nilai SD dari Parameter Fisik Evaluasi Formula Optimasi

Tabel 16. Hasil perhitungan pH

Formula	Replikasi	pH	Rata-Rata ± SD
F1	R1	5,92	5,87 ± 0,04
	R2	5,87	
	R3	5,83	
F2	R1	5,74	5,72 ± 0,01
	R2	5,71	
	R3	5,73	

F3	R1	5,92	5,85 ± 0,05
	R2	5,84	
	R3	5,81	
F4	R1	6,45	5,82 ± 0,57
	R2	5,67	
	R3	5,34	
F5	R1	5,6	5,57 ± 0,02
	R2	5,57	
	R3	5,56	
F6	R1	6,46	5,93 ± 0,56
	R2	6	
	R3	5,33	
F7	R1	6,73	6,52 ± 0,22
	R2	6,28	
	R3	6,55	
F8	R1	5,91	5,87 ± 0,03
	R2	5,85	
	R3	5,87	

Tabel 17. Hasil perhitungan daya lekat

Formula	Replikasi	Daya Lekat	Rata-Rata ± SD
F1	R1	5	5,05 ± 0,22
	R2	5,3	
	R3	4,85	
F2	R1	4,12	4,62 ± 0,93
	R2	5,71	
	R3	4,05	
F3	R1	5,67	5,07 ± 0,72
	R2	4,27	
	R3	5,27	
F4	R1	4,28	4,83 ± 0,57
	R2	5,43	
	R3	4,78	
F5	R1	4,65	4,60 ± 0,13
	R2	4,46	
	R3	4,71	
F6	R1	5,05	5,03 ± 0,45
	R2	4,57	
	R3	5,48	
F7	R1	4,38	5,00 ± 0,68
	R2	4,91	
	R3	5,73	
F8	R1	4,54	5 ± 0,53
	R2	5,58	
	R3	4,88	

Tabel 18. Hasil perhitungan daya sebar

Formula	Replikasi	Daya Sebar	Rata-Rata ± SD
F1	R1	5,9	5,73 ± 0,41
	R2	6,03	
	R3	5,26	
F2	R1	5,86	5,91 ± 0,09
	R2	5,86	
	R3	6,03	
F3	R1	5,83	5,74 ± 0,07
	R2	5,7	
	R3	5,7	

F4	R1	5,36	5,42 ± 0,05
	R2	5,46	
	R3	5,46	
F5	R1	5,76	5,75 ± 0,08
	R2	5,66	
	R3	5,83	
F6	R1	5,93	5,97 ± 0,14
	R2	5,86	
	R3	6,13	
F7	R1	6,46	6,35 ± 0,09
	R2	6,3	
	R3	6,3	
F8	R1	6,46	6,32 ± 0,19
	R2	6,4	
	R3	6,1	

Tabel 19. Hasil perhitungan viskositas RPM 5

Formula	Replikasi	Viskositas	Rata-Rata ± SD
F1	R1	34400	28760 ± 5044,28
	R2	27200	
	R3	24680	
F2	R1	39240	31173,33 ± 7447,12
	R2	24560	
	R3	29720	
F3	R1	35840	34666,7 ± 1634,3
	R2	35360	
	R3	32800	
F4	R1	34480	35253,33 ± 1588,12
	R2	37080	
	R3	34200	
F5	R1	35280	31586,67 ± 7136,871
	R2	23360	
	R3	36120	
F6	R1	27560	32560 ± 4795,164
	R2	37120	
	R3	33000	
F7	R1	28200	22720 ± 4761,008
	R2	19600	
	R3	20360	
F8	R1	28440	22720 ± 4956,935
	R2	19680	
	R3	20040	

Lampiran 5. Perhitungan Nilai SD dari Formula Optimum**Tabel 20.** Hasil perhitungan pH formula optimum

Kondisi	Replikasi	pH	Rata-Rata ± SD
Sebelum	R1	6,08	5,78 ± 0,26
	R2	5,67	
	R3	5,59	
Sesudah	R1	6,07	5,92 ± 0,13
	R2	5,82	
	R3	5,92	

Tabel 21. Hasil perhitungan daya lekat formula optimum

Kondisi	Replikasi	Daya Lekat	Rata-Rata ± SD
Sebelum	R1	4,47	4,60 ± 0,14

Sesudah	R2	4,75	5,09 ± 0,31
	R3	4,6	
	R1	5,16	
	R2	4,75	
	R3	5,38	

Tabel 22. Hasil perhitungan daya sebar

Kondisi	Replikasi	Daya Sebar	Rata-Rata ± SD
Sebelum	R1	6,56	6,23 ± 0,29
	R2	6,13	
	R3	6	
Sesudah	R1	6,7	6,7 ± 0,1
	R2	6,6	
	R3	6,8	

Tabel 23. Hasil perhitungan viskositas RPM 5

Kondisi	Viskositas (P)
Sebelum	206,1333±15,62733
Sesudah	134,6±36,72438

Lampiran 6. Perhitungan Penentuan Nilai SPF

$$SPF = CF \times \sum_{290}^{320} EE \times (\lambda) \times I(\lambda) \times Abs(\lambda)$$

Keterangan :

CF = Faktor Koreksi (10)

Abs = Absorbansi Sampel

EE = Spektrum Eritema

I = Spektrum Intensitas Cahaya

Tabel 24 . Nilai EE x I

Panjang Gelombang (nm)	EE x I
290	0,0150
295	0,0817
300	0,2874
305	0,3278
310	0,1864
315	0,0839
320	0,0180
Total	1

Tabel 25. Hasil Perhitungan Nilai SPF *Lotion* Ekstrak Kulit Pisang Raja yang Paling Optimum

Formula	Panjang Gelombang (nm)	Absorbansi				EE x I
		500 ppm	750 ppm	1000 ppm	1500 ppm	
F1	290	0,737	1,168	1,456	2,223	0,0150
	295	0,524	1,031	1,031	1,587	0,0817
	300	0,450	0,882	0,882	1,361	0,2874
	305	0,402	0,789	0,789	1,218	0,3278
	310	0,366	0,717	0,717	1,108	0,1864
	315	0,336	0,657	0,657	1,016	0,0839

	320	0,306	0,598	0,598	0,924	0,0180
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Tabel 26. Hasil Perhitungan Nilai $EE \times I \times$ Nilai SPF *Lotion* Ekstrak Kulit Pisang Raja yang Paling Optimum

Formula	Panjang Gelombang (nm)	Absorbansi			
		500 ppm	750 ppm	1000 ppm	1500 ppm
F1	290	0,0569	0,0115	0,0252	0,0412
	295	0,0443	0,0658	0,0991	0,1696
	300	0,1336	0,1983	0,3023	0,5282
	305	0,1357	0,2019	0,3104	0,5503
	310	0,0699	0,1041	0,1616	0,2902
	315	0,0287	0,0428	0,0670	0,1220
	320	0,0243	0,0132	0,0083	0,0055
	Jumlah	0,4295	0,6386	0,9790	1,7262

Tabel 27. Hasil Perhitungan Nilai SPF *Lotion* Ekstrak Kulit Pisang Raja yang Paling Optimum

Formula	Absorbansi			
	500 ppm	750 ppm	1000 ppm	1500 ppm
F1	4,2955	6,3869	9,7907	17,262

Lampiran 7. Gambaran Hasil Penelitian



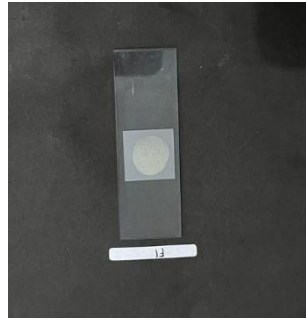
Gambar 9. Proses ekstraksi



Gambar 10. Optimasi Formula



Gambar 11. Formula Optimal



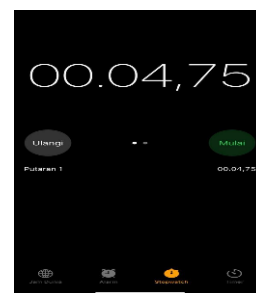
Gambar 12. Uji Homogenitas



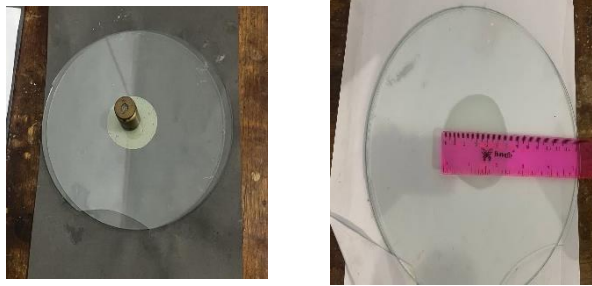
Gambar 13. Uji Viskositas



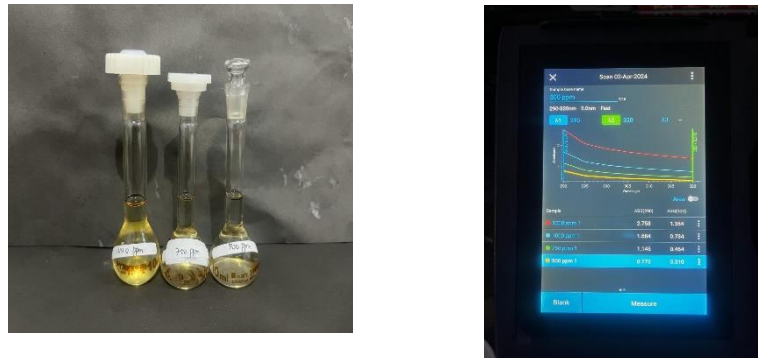
Gambar 14. Uji pH



Gambar 15. Uji Daya Lekat



Gambar 16. Uji daya sebar



Gambar 17. Penentuan Nilai SPF



Gambar 18. Uji Tipe emulsi



Gambar 19. Uji Stabilitas