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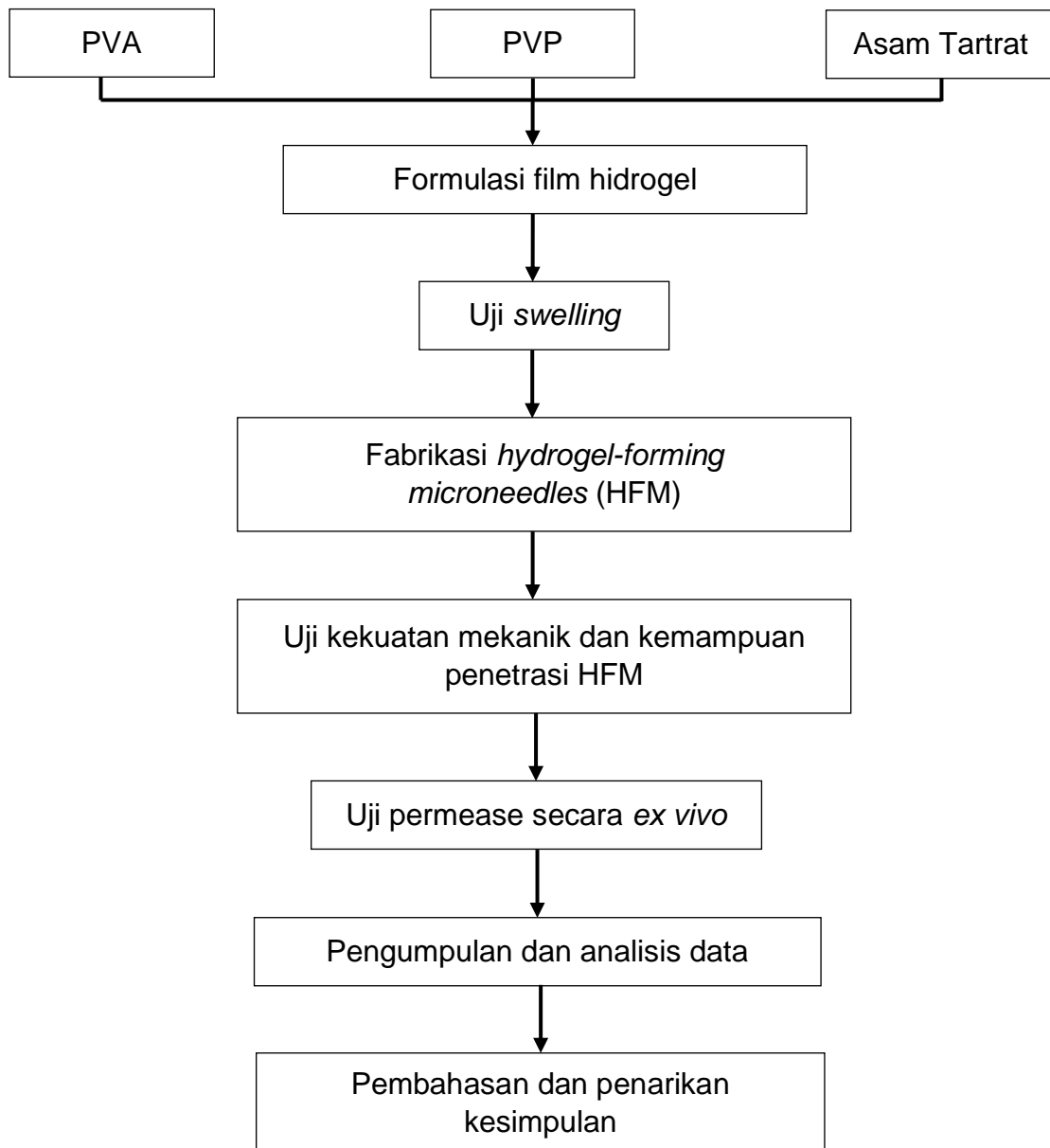
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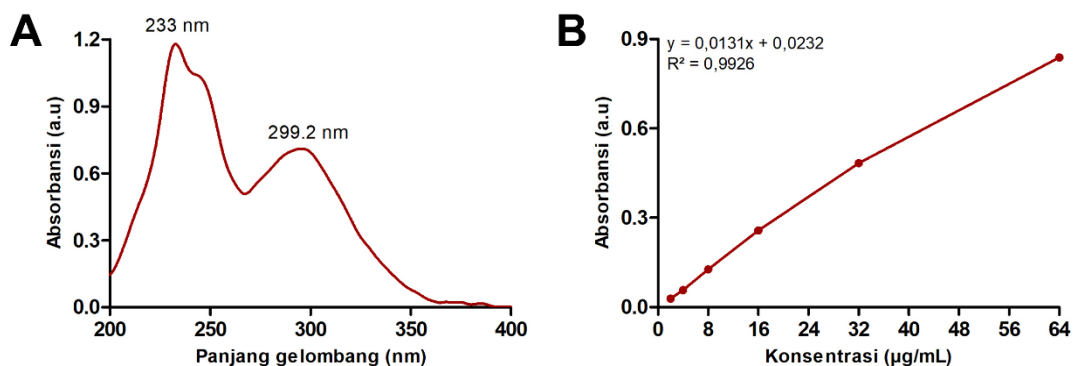
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## LAMPIRAN

### Lampiran 1. Skema Kerja



## Lampiran 2. Panjang Gelombang Maksimum dan Kurva Baku



Gambar 15. Panjang gelombang maksimum SS (a) dan kurva baku SS (b) dalam PBS + polisorbate 80 2%

Tabel 3. Data absorbansi kurva baku SS dalam PBS + polisorbate 80 2%

Konsentrasi (bpj)	Absorbansi (a.u)				
	Replikasi 1	Replikasi 2	Replikasi 3	Rata-rata	SD
64	0,827	0,865	0,823	0,838	0,023
32	0,473	0,496	0,481	0,483	0,011
16	0,273	0,253	0,247	0,257	0,013
8	0,120	0,135	0,126	0,127	0,007
4	0,051	0,063	0,057	0,057	0,006
2	0,022	0,036	0,028	0,028	0,007



### Lampiran 3. Perhitungan Data dan Tabel Data %Swelling

#### Lampiran 3.1 Perhitungan %Swelling

Untuk F1 menit ke-15 replikasi pertama, bobot film hidrogel adalah 0,2754 g dengan rata-rata bobot film hidrogel awal adalah 0,1817 g.

$$\%Swelling = \frac{(\text{Bobot film pada waktu ke-n} - \text{Bobot film awal})}{\text{Bobot film awal}} \times 100$$

$$\%Swelling = \frac{(0,2754 \text{ g} - 0,1817 \text{ g})}{0,1817 \text{ g}} \times 100$$

$$\%Swelling = \frac{0,0937 \text{ g}}{0,1817 \text{ g}} \times 100$$

$$\%Swelling = 51,54\%$$

### Lampiran 3.2 Tabel data %Swelling

Tabel 4. Data hasil uji *swelling* film hidrogel

Waktu (menit)	F1				F2				F3						
	Persentase Swelling (%)			Rata-rata	Persentase Swelling (%)			Rata-rata	Persentase Swelling (%)			Rata-rata	SD		
0,5	7,69	7,52	7,91	7,70	0,19	15,86	15,82	15,65	15,78	0,11	15,77	15,55	15,50	15,61	0,15
1	12,69	12,42	12,47	12,53	0,15	29,66	29,50	29,34	29,50	0,16	27,74	27,55	27,33	27,54	0,21
2	18,58	18,80	18,69	18,69	0,11	46,63	46,56	46,54	46,58	0,05	40,09	40,09	40,01	40,06	0,05
3	23,75	23,26	22,71	23,24	0,52	57,71	57,36	57,24	57,44	0,24	49,29	48,22	47,67	48,39	0,82
4	27,93	27,60	27,22	27,59	0,36	70,10	69,80	69,80	69,90	0,18	57,52	57,44	57,08	57,35	0,23
5	31,29	30,96	31,18	31,14	0,17	81,34	81,27	80,99	81,20	0,19	63,86	63,67	63,37	63,63	0,25
10	43,18	42,41	41,75	42,44	0,72	102,44	102,32	102,21	102,32	0,12	80,93	80,80	80,55	80,76	0,19
15	51,54	51,43	51,49	51,49	0,06	118,92	118,99	119,03	118,98	0,06	98,39	98,42	97,90	98,23	0,29
30	71,90	71,68	71,46	71,68	0,22	154,89	154,45	154,17	154,50	0,37	134,07	133,88	133,77	133,91	0,15
60	101,94	101,83	101,61	101,80	0,17	198,31	198,08	197,58	197,99	0,37	189,90	188,86	188,55	189,10	0,71
120	160,27	159,72	159,50	159,83	0,40	277,16	276,58	276,16	276,63	0,51	248,01	247,54	247,29	247,61	0,36
180	206,77	206,27	205,83	206,29	0,47	287,09	286,93	286,11	286,71	0,53	290,69	290,30	289,75	290,25	0,47
240	252,16	274,17	235,66	254,00	19,32	317,13	316,80	316,50	316,81	0,32	318,33	318,08	318,05	318,15	0,15
300	263,17	257,67	285,18	268,67	14,56	341,21	334,17	334,17	336,52	4,06	328,32	327,77	327,27	327,79	0,52
360	285,18	301,69	301,69	296,18	9,53	362,33	364,68	362,33	363,12	1,35	333,67	333,67	336,41	334,58	1,58
420	318,20	318,20	307,19	314,53	6,35	362,33	367,03	369,37	366,24	3,58	339,16	339,16	341,90	340,07	1,58
480	334,70	334,70	334,70	334,70	0,00	378,76	374,07	388,15	380,33	7,17	341,90	341,90	341,90	341,90	0,00
1440	380,92	379,27	378,56	379,59	1,21	397,54	402,23	399,88	399,88	2,35	350,60	350,33	350,05	350,33	0,27

## Lampiran 4. Perhitungan Data dan Tabel Data %Kompresi

### Lampiran 4.1 Perhitungan %Kompresi

Untuk F1 replikasi pertama, tinggi jarum sebelum kompresi adalah 651,59  $\mu\text{m}$  dengan tinggi jarum setelah kompresi adalah 613,36  $\mu\text{m}$ .

$$\% \text{Kompresi} = \frac{\text{Tinggi jarum sebelum kompresi} - \text{Tinggi jarum setelah kompresi}}{\text{Tinggi jarum sebelum kompresi}} \times 100$$

$$\% \text{Kompresi} = \frac{651,59 - 613,36}{651,59} \times 100$$

$$\% \text{Kompresi} = \frac{38,23}{651,59} \times 100$$

$$\% \text{Kompresi} = 5,87\%$$

### Lampiran 4.2 Tabel data %Kompresi

Tabel 5. Data hasil uji kekuatan mekanik HFM

Formula	Tinggi HFM sebelum kompresi ( $\mu\text{m}$ )	Tinggi HFM setelah kompresi ( $\mu\text{m}$ )	%Kompresi	Rata-rata	SD
F1	651,59	613,36	5,87	9,43	4,64
	664,21	566,74	14,67		
	682,86	630,03	7,74		
F2	635,17	579,60	8,75	7,46	2,19
	632,07	600,96	4,92		
	644,52	588,48	8,70		
F3	685,12	669,50	2,28	2,90	1,10
	685,00	669,63	2,24		
	675,85	647,63	4,18		



## Lampiran 6. Perhitungan Data dan Tabel Data Permeasi *Ex Vivo*

### Lampiran 6.1 Perhitungan persentase permeasi *ex vivo*

Untuk F1 jam ke-1 replikasi pertama diperoleh absorbansi 0,631 dengan persamaan regresi  $y = 0,0131x + 0,0208$  dan faktor dilusi = 2

$$y = 0,0131x + 0,0208$$

$$x = \frac{y - 0,0208}{0,0131}$$

$$x = \frac{0,631 - 0,0208}{0,0131}$$

$$x = \frac{0,6102}{0,0131} = 46,40 \mu\text{g/mL}$$

Konsentrasi dalam 13 mL =  $46,40 \mu\text{g/mL} \times 13 \times 2 = 1206,32 \mu\text{g/mL} = 1,21 \text{ mg/mL}$

$$\text{Faktor koreksi} = \frac{\text{Konsentrasi jam sebelumnya}}{1000} + \text{faktor koreksi jam sebelumnya}$$

$$\text{Faktor koreksi} = \frac{36,32}{1000} + 0,04$$

$$\text{Faktor koreksi} = 0,08$$

Jumlah obat yang terpermeasi = Konsentrasi dalam 13 mL + Faktor koreksi

$$\text{Jumlah obat yang terpermeasi} = 1,21 \text{ mg} + 0,08$$

$$\text{Jumlah obat yang terpermeasi} = 1,29 \text{ mg}$$

## Lampiran 6.2 Tabel uji permeasi *ex vivo*

Tabel 7. Data hasil uji permeasi F1

Waktu (jam)	Absorbansi	Konsentrasi ( $\mu\text{g/mL}$ )	Faktor pengenceran	Dalam 13 mL (mg)	Faktor koreksi	Sildenafil sitrat yang terpermeasi (mg)	Rata-rata (mg)	SD
0,25	0,637	46,85	1	0,61	0,00	0,61	0,67	0,06
	0,733	54,18	1	0,70	0,00	0,70		
	0,733	54,18	1	0,70	0,00	0,70		
0,5	0,499	36,32	2	0,94	0,05	0,99	0,98	0,02
	0,479	34,79	2	0,90	0,05	0,96		
	0,489	35,56	2	0,92	0,05	0,98		
1	0,631	46,40	2	1,21	0,08	1,29	1,34	0,05
	0,660	48,61	2	1,26	0,09	1,35		
	0,675	49,76	2	1,29	0,09	1,38		
2	0,667	49,15	2	1,28	0,13	1,41	1,47	0,05
	0,699	51,59	2	1,34	0,14	1,48		
	0,715	52,81	2	1,37	0,14	1,51		
3	0,637	46,85	2	1,22	0,18	1,40	1,46	0,06
	0,667	49,15	2	1,28	0,19	1,47		
	0,691	50,98	2	1,33	0,19	1,52		
4	0,660	48,61	2	1,26	0,23	1,49	1,55	0,06
	0,691	50,98	2	1,33	0,24	1,56		
	0,707	52,20	2	1,36	0,24	1,60		

Lanjutan Tabel 7

Waktu (jam)	Absorbansi	Konsentrasi ( $\mu\text{g/mL}$ )	Faktor pengenceran	Dalam 13 mL (mg)	Faktor koreksi	Sildenafil sitrat yang terpermeasi (mg)	Rata-rata (mg)	SD
5	0,631	46,40	2	1,21	0,27	1,48	1,52	0,04
	0,645	47,47	2	1,23	0,29	1,52		
	0,660	48,61	2	1,26	0,30	1,56		
6	0,617	45,33	2	1,18	0,32	1,50	1,55	0,05
	0,637	46,85	2	1,22	0,34	1,55		
	0,652	48,00	2	1,25	0,34	1,59		
7	0,455	32,96	4	1,71	0,37	2,08	2,07	0,01
	0,445	32,20	4	1,67	0,38	2,06		
	0,450	32,58	4	1,69	0,39	2,09		
8	0,441	31,89	4	1,66	0,40	2,06	2,10	0,04
	0,445	32,20	4	1,67	0,42	2,09		
	0,455	32,96	4	1,71	0,42	2,14		

**Tabel 8. Data hasil uji permeasi F2**

Waktu (jam)	Absorbansi	Konsentrasi ( $\mu\text{g/mL}$ )	Faktor pengenceran	Dalam 13 mL (mg)	Faktor koreksi	Sildenafil sitrat yang terpermeasi (mg)	Rata-rata (mg)	SD
0,25	0,387	27,77	4	1,44	0,00	1,44	1,47	0,02
	0,399	28,69	4	1,49	0,00	1,49		
	0,392	28,15	4	1,46	0,00	1,46		
0,5	0,466	33,80	4	1,76	0,03	1,79	1,74	0,15
	0,484	35,18	4	1,83	0,03	1,86		
	0,412	29,68	4	1,54	0,03	1,57		
1	0,314	22,20	8	2,31	0,06	2,37	2,84	0,54
	0,357	25,48	8	2,65	0,06	2,71		
	0,448	32,43	8	3,37	0,06	3,43		
2	0,632	46,47	8	4,83	0,08	4,92	4,82	0,11
	0,605	44,41	8	4,62	0,09	4,71		
	0,622	45,71	8	4,75	0,09	4,84		
3	0,468	33,95	16	7,06	0,13	7,19	6,44	0,74
	0,374	26,78	16	5,57	0,13	5,70		
	0,419	30,21	16	6,28	0,14	6,42		
4	0,377	27,01	32	11,24	0,16	11,40	11,68	0,39
	0,381	27,31	32	11,36	0,16	11,52		
	0,400	28,76	32	11,97	0,17	12,13		



Lanjutan Tabel 8

Waktu (jam)	Absorbansi	Konsentrasi ( $\mu\text{g/mL}$ )	Faktor pengenceran	Dalam 13 mL (mg)	Faktor koreksi	Sildenafil sitrat yang terpermeasi (mg)	Rata-rata (mg)	SD
5	0,507	36,93	32	15,36	0,19	15,55	15,62	0,67
	0,489	35,56	32	14,79	0,19	14,98		
	0,531	38,76	32	16,13	0,19	16,32		
6	0,557	40,75	32	16,95	0,23	17,18	16,93	0,24
	0,542	39,60	32	16,47	0,22	16,70		
	0,548	40,06	32	16,67	0,23	16,90		
7	0,584	42,81	32	17,81	0,27	18,08	17,77	0,29
	0,566	41,44	32	17,24	0,26	17,50		
	0,573	41,97	32	17,46	0,27	17,73		
8	0,594	43,57	32	18,13	0,31	18,44	18,49	0,27
	0,605	44,41	32	18,48	0,30	18,78		
	0,588	43,11	32	17,94	0,32	18,25		

Tabel 9. Data hasil uji permeasi F3

Waktu (jam)	Absorbansi	Konsentrasi ( $\mu\text{g/mL}$ )	Faktor pengenceran	Dalam 13 mL (mg)	Faktor koreksi	Sildenafil sitrat yang terpermeasi (mg)	Rata-rata (mg)	SD
0,25	0,530	38,69	4	2,01	0,00	2,01	2,05	0,04
	0,544	39,76	4	2,07	0,00	2,07		
	0,548	40,06	4	2,08	0,00	2,08		
0,5	0,367	26,24	4	1,36	0,04	1,40	1,46	0,05
	0,388	27,85	4	1,45	0,04	1,49		
	0,387	27,77	4	1,44	0,04	1,48		
1	0,391	28,08	4	1,46	0,06	1,52	1,52	0,02
	0,394	28,31	4	1,47	0,07	1,54		
	0,383	27,47	4	1,43	0,07	1,50		
2	0,591	43,34	4	2,25	0,09	2,35	2,35	0,02
	0,599	43,95	4	2,29	0,10	2,38		
	0,587	43,04	4	2,24	0,10	2,33		
3	0,502	36,55	8	3,80	0,14	3,94	3,99	0,08
	0,520	37,92	8	3,94	0,14	4,08		
	0,505	36,78	8	3,82	0,14	3,96		
4	0,627	46,09	8	4,79	0,17	4,97	4,91	0,05
	0,613	45,02	8	4,68	0,18	4,86		
	0,619	45,48	8	4,73	0,18	4,91		

Lanjutan Tabel 9

Waktu (jam)	Absorbansi	Konsentrasi ( $\mu\text{g/mL}$ )	Faktor pengenceran	Dalam 13 mL (mg)	Faktor koreksi	Sildenafil sitrat yang terpermeasi (mg)	Rata-rata (mg)	SD
5	0,428	30,90	16	6,43	0,22	6,65	6,83	0,27
	0,431	31,13	16	6,47	0,22	6,70		
	0,459	33,27	16	6,92	0,22	7,14		
6	0,554	40,52	16	8,43	0,25	8,68	8,57	0,09
	0,542	39,60	16	8,24	0,25	8,49		
	0,546	39,91	16	8,30	0,25	8,55		
7	0,661	48,69	16	10,13	0,29	10,42	9,94	0,57
	0,640	47,08	16	9,79	0,29	10,09		
	0,591	43,34	16	9,02	0,29	9,31		
8	0,724	53,50	16	11,13	0,34	11,47	10,32	1,04
	0,597	43,80	16	9,11	0,34	9,45		
	0,634	46,63	16	9,70	0,34	10,04		

## Lampiran 7. Perhitungan Data dan Tabel Data Fluks

### Lampiran 7.1 Perhitungan fluks

Untuk F1 jam ke-8 replikasi pertama, konsentrasi obat adalah 31,89 µg/mL, faktor dilusi = 4, volume kompartemen reseptor = 13 mL, dan luas area membran difusi adalah 1,77 cm<sup>2</sup> (diameter = 1,5 cm).

$$\text{Permeat} = \frac{\text{Konsentrasi obat pada jam ke-n} \times \text{faktor dilusi} \times \text{volume kompartemen reseptor}}{\text{Luas area membran difusi}}$$

$$\text{Permeat} = \frac{31,89 \mu\text{g/mL} \times 4 \times 13 \text{ mL}}{1,77 \text{ cm}^2}$$

$$\text{Permeat} = 936,89 \mu\text{g/cm}^2$$

Untuk permeat kumulatif, dilakukan penjumlahan dari permeat dari jam-jam sebelumnya hingga diperoleh nilai permeat kumulatif pada jam ke-8 replikasi pertama = 6949,87 µg/cm<sup>2</sup>

$$\text{Fluks} = \frac{\text{Permeat kumulatif pada jam ke-n}}{\text{Waktu (jam)}}$$

$$\text{Fluks} = \frac{6949,88 \mu\text{g/cm}^2}{8 \text{ jam}}$$

$$\text{Fluks} = 868,73 \mu\text{g/cm}^2.\text{jam}$$

## Lampiran 7.2 Tabel data fluks

Tabel 10. Data fluks permeasi *ex vivo* pada jam ke-8

Formula	Permeat ( $\mu\text{g}/\text{cm}^2$ )	Rata-rata	SD	Permeat kumulatif ( $\mu\text{g}/\text{cm}^2$ )	Rata-rata	SD	Fluks ( $\mu\text{g}/\text{cm}^2 \cdot \text{jam}$ )	Rata-rata	SD
F1	938,82			6949,87			868,73		
	947,81	952,31	16,20	7143,12	7131,51	176,12	892,89	891,43	22,01
	970,28			7301,54			912,69		
F2	10261,06			54848,95			6856,12		
	10458,80	10291,02	154,98	53496,21	54526,12	912,38	6687,02	6815,76	114,04
	10153,20			55233,21			6904,15		
F3	6299,01			29320,34			3665,04		
	5157,49	5648,85	587,09	28030,51	28491,91	718,98	3503,81	3561,48	89,87
	5490,06			28124,89			3515,61		

## Lampiran 8. Hasil Uji Statistik Menggunakan Software IBM SPSS

### Lampiran 8.1 Uji *swelling*

#### Tests of Normality

	Formula	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
<i>Swelling</i>	F1	.268	3	.	.950	3	.571
	F2	.175	3	.	1.000	3	1.000
	F3	.175	3	.	1.000	3	1.000

a. Lilliefors Significance Correction

#### ANOVA

*Swelling*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3723.424	2	1861.712	791.583	.000
Within Groups	14.111	6	2.352		
Total	3737.535	8			

#### Post Hoc Tests

##### Multiple Comparisons

Dependent Variable: *Swelling*

Tukey HSD

(I)	(J)	Mean			95% Confidence Interval	
Formula	Formula	Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
F1	F2	-20.2971835*	1.2521673	.000	-24.139176	-16.455190
	F3	29.2561045*	1.2521673	.000	25.414111	33.098098
F2	F1	20.2971835*	1.2521673	.000	16.455190	24.139176
	F3	49.5532880*	1.2521673	.000	45.711295	53.395281
F3	F1	-29.2561045*	1.2521673	.000	-33.098098	-25.414111
	F2	-49.5532880*	1.2521673	.000	-53.395281	-45.711295

\*. The mean difference is significant at the 0.05 level.

## Lampiran 8.2 Uji kekuatan mekanik

### Tests of Normality

Formula	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Kekuatan_mekanik F1	.309	3	.	.901	3	.387
F2	.381	3	.	.761	3	.024
F3	.379	3	.	.764	3	.032

a. Lilliefors Significance Correction

### Independent-Samples Kruskal-Wallis Test Summary

Total N	9
Test Statistic	5.422 <sup>a,b</sup>
Degree Of Freedom	2
Asymptotic Sig.(2-sided test)	.066

a. The test statistic is adjusted for ties.

b. Multiple comparisons are not performed because the overall test does not show significant differences across samples.

## Lampiran 8.3 Uji kemampuan penetrasi

### Tests of Normality

	Formula	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Kemampuan_penetrasi	F1	.320	3	.	.884	3	.336
	F2	.253	3	.	.964	3	.637
	F3	.232	3	.	.980	3	.726

a. Lilliefors Significance Correction

### ANOVA

Kemampuan\_penetrasi

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	400.667	2	200.333	.929	.445
Within Groups	1293.333	6	215.556		
Total	1694.000	8			

### Post Hoc Tests

#### Multiple Comparisons

Dependent Variable: Kemampuan\_penetrasi

Tukey HSD

(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Formula	Formula				Lower Bound	Upper Bound
F1	F2	-16.333	11.988	.416	-53.11	20.45
	F3	-7.667	11.988	.805	-44.45	29.11
F2	F1	16.333	11.988	.416	-20.45	53.11
	F3	8.667	11.988	.760	-28.11	45.45
F3	F1	7.667	11.988	.805	-29.11	44.45
	F2	-8.667	11.988	.760	-45.45	28.11



## Lampiran 8.4 Uji permeasi *ex vivo*

### Tests of Normality

	Formula	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Permeasi_Ex_Vivo	F1	.218	3	.	.988	3	.788
	F2	.243	3	.	.972	3	.679
	F3	.274	3	.	.944	3	.545

a. Lilliefors Significance Correction

### ANOVA

Permeasi\_Ex\_Vivo

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6450.606	2	3225.303	526.625	.000
Within Groups	36.747	6	6.124		
Total	6487.353	8			

### Post Hoc Tests

#### Multiple Comparisons

Dependent Variable: Permeasi\_Ex\_Vivo

Tukey HSD

(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Formula	Formula				Lower Bound	Upper Bound
F1	F2	-65.5773639*	2.0206395	.000	-71.777241	-59.377487
	F3	-32.8890992*	2.0206395	.000	-39.088976	-26.689222
F2	F1	65.5773639*	2.0206395	.000	59.377487	71.777241
	F3	32.6882646*	2.0206395	.000	26.488388	38.888141
F3	F1	32.8890992*	2.0206395	.000	26.689222	39.088976
	F2	-32.6882646*	2.0206395	.000	-38.888141	-26.488388

\*. The mean difference is significant at the 0.05 level.

## Lampiran 8.5 Fluks permeasi *ex vivo*

### Tests of Normality

	Formula	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Fluks	F1	.193	3	.	.997	3	.891
	F2	.305	3	.	.906	3	.405
	F3	.362	3	.	.805	3	.125

a. Lilliefors Significance Correction

### ANOVA

Fluks

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	58945593.247	2	29472796.623	4157.388	.000
Within Groups	42535.546	6	7089.258		
Total	58988128.793	8			

### Post Hoc Tests

#### Multiple Comparisons

Dependent Variable: Fluks

Tukey HSD

(I) Formula	(J) Formula	Mean Difference			95% Confidence Interval	
		(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
F1	F2	-6267.18782 <sup>*</sup>	68.74716	.000	-6478.1230	-6056.2527
	F3	-3012.91134 <sup>*</sup>	68.74716	.000	-3223.8465	-2801.9762
F2	F1	6267.18782 <sup>*</sup>	68.74716	.000	6056.2527	6478.1230
	F3	3254.27647 <sup>*</sup>	68.74716	.000	3043.3413	3465.2116
F3	F1	3012.91134 <sup>*</sup>	68.74716	.000	2801.9762	3223.8465
	F2	-3254.27647 <sup>*</sup>	68.74716	.000	-3465.2116	-3043.3413

\*. The mean difference is significant at the 0.05 level.

**Lampiran 9. Hasil Uji Kinetika Pelepasan Obat Menggunakan *add-ins* Microsoft Excel (DDsolver)**

<b><u>DDSolver 1.0</u></b>		<b><i>Dissolution Data Modeling of Zero-order Model</i></b>	
Time Unit	h	Analyst	Diany Elim
Model	Zero-order	Date	2022-11-1
Equation	$F=k_0 \cdot t$	Time	20:46:55

Time (h)	No.1 F(%)	Mean	SD	RSD(%)
0.25	5.87	5.87		
0.5	6.95	6.95		
1	11.35	11.35		
2	19.29	19.29		
3	25.76	25.76		
4	46.74	46.74		
5	62.47	62.47		
6	67.70	67.70		
7	71.08	71.08		
8	73.96	73.96		

<b>Best-fit Values</b>				
Parameter	No.1	Mean	SD	RSD(%)
k0	10.410	10.410		

<b>Secondary Parameter</b>				
Parameter	No.1	Mean	SD	RSD(%)
T25	2.402	2.402		
T50	4.803	4.803		
T75	7.205	7.205		
T80	7.685	7.685		
T90	8.645	8.645		

<b>Goodness of Fit</b>	
Parameter	No.1
N_observed	10
DF	9
R_obs-pre	0.9804
Rsqr	<b>0.9581</b>
Rsqr_adj	0.9581
MSE	33.2331
MSE_root	5.7648
Weighting	1
SS	299.0977
WSS	299.0977
AIC	59.0077
MSC	2.9725

**DDSolver 1.0****Dissolution Data Modeling of First-order Model**

Time Unit	h	Analyst	Diany Elim
Model	First-order	Date	2022-11-1
Equation	$F=100*[1-Exp(-k1*t)]$	Time	20:47:27

Time (h)	No.1 F(%)	Mean	SD	RSD(%)
0.25	5.87	5.87		
0.5	6.95	6.95		
1	11.35	11.35		
2	19.29	19.29		
3	25.76	25.76		
4	46.74	46.74		
5	62.47	62.47		
6	67.70	67.70		
7	71.08	71.08		
8	73.96	73.96		

**Best-fit Values**

Parameter	No.1	Mean	SD	RSD(%)
k1	0.172	0.172		

**Secondary Parameter**

Parameter	No.1	Mean	SD	RSD(%)
T25	1.672	1.672		
T50	4.030	4.030		
T75	8.059	8.059		
T80	9.357	9.357		
T90	13.386	13.386		

**Goodness of Fit**

Parameter	No.1
N_observed	10
DF	9
R_obs-pre	0.9786
Rsqr	0.9472
Rsqr_adj	0.9472
MSE	41.9164
MSE_root	6.4743
Weighting	1
SS	377.2472
WSS	377.2472
AIC	61.3290
MSC	2.7404

<b>DDSolver 1.0</b>		<b>Dissolution Data Modeling of Higuchi Model</b>	
Time Unit	h	Analyst	Diany Elim
Model	Higuchi	Date	2022-11-1
Equation	$F=kH*t^{0.5}$	Time	20:48:04

Time (h)	No.1 F(%)	Mean	SD	RSD(%)
0.25	5.87	5.87		
0.5	6.95	6.95		
1	11.35	11.35		
2	19.29	19.29		
3	25.76	25.76		
4	46.74	46.74		
5	62.47	62.47		
6	67.70	67.70		
7	71.08	71.08		
8	73.96	73.96		

<b>Best-fit Values</b>				
Parameter	No.1	Mean	SD	RSD(%)
kH	24.146	24.146		

<b>Secondary Parameter</b>				
Parameter	No.1	Mean	SD	RSD(%)
T25	1.072	1.072		
T50	4.288	4.288		
T75	9.648	9.648		
T80	10.977	10.977		
T90	13.893	13.893		

<b>Goodness of Fit</b>	
Parameter	No.1
N_observed	10
DF	9
R_obs-pre	0.9710
Rsqr	<b>0.8578</b>
Rsqr_adj	0.8578
MSE	112.7619
MSE_root	10.6189
Weighting	1
SS	1014.8571
WSS	1014.8571
AIC	71.2250
MSC	1.7508

<b>DDSolver 1.0</b>				<b>Dissolution Data Modeling of Korsmeyer-Peppas Model</b>			
Time Unit	h	Analyst	Diany Elim				
Model	Korsmeyer-Peppas	Date	2022-11-1				
Equation	$F=kKP*t^n$	Time	20:48:28				

Time (h)	No.1 F(%)	Mean	SD	RSD(%)
0.25	5.87	5.87		
0.5	6.95	6.95		
1	11.35	11.35		
2	19.29	19.29		
3	25.76	25.76		
4	46.74	46.74		
5	62.47	62.47		
6	67.70	67.70		
7	71.08	71.08		
8	73.96	73.96		

<b>Best-fit Values</b>				
Parameter	No.1	Mean	SD	RSD(%)
kKP	13.619	13.619		
n	0.820	0.820		

<b>Secondary Parameter</b>				
Parameter	No.1	Mean	SD	RSD(%)
T25	2.097	2.097		
T50	4.881	4.881		
T75	8.002	8.002		
T80	8.657	8.657		
T90	9.994	9.994		

<b>Goodness of Fit</b>	
Parameter	No.1
N_observed	10
DF	8
R_obs-pre	0.9817
Rsqr	0.9539
Rsqr_adj	0.9481
MSE	41.1427
MSE_root	6.4143
Weighting	1
SS	329.1416
WSS	329.1416
AIC	61.9649
MSC	2.6768

<b>DDSolver 1.0</b>		<b>Dissolution Data Modeling of Hixson-Crowell Model</b>	
Time Unit	h	Analyst	Diany Elim
Model	Hixson-Crowell	Date	2022-11-1
Equation	$F=100*[1-(1-kHC*t)^3]$	Time	20:48:52

Time (h)	No.1 F(%)	Mean	SD	RSD(%)
0.25	5.87	5.87		
0.5	6.95	6.95		
1	11.35	11.35		
2	19.29	19.29		
3	25.76	25.76		
4	46.74	46.74		
5	62.47	62.47		
6	67.70	67.70		
7	71.08	71.08		
8	73.96	73.96		

<b>Best-fit Values</b>				
Parameter	No.1	Mean	SD	RSD(%)
kHC	0.048	0.048		

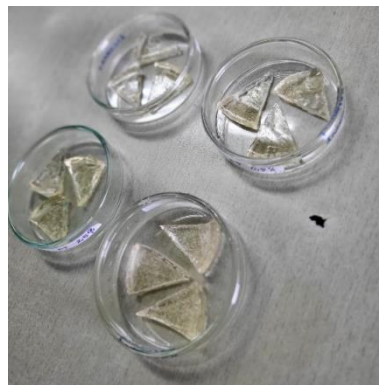
<b>Secondary Parameter</b>				
Parameter	No.1	Mean	SD	RSD(%)
T25	1.911	1.911		
T50	4.312	4.312		
T75	7.735	7.735		
T80	8.679	8.679		
T90	11.201	11.201		

<b>Goodness of Fit</b>	
Parameter	No.1
N_observed	10
DF	9
R_obs-pre	0.9835
Rsqr	0.9648
Rsqr_adj	0.9648
MSE	27.9337
MSE_root	5.2852
Weighting	1
SS	251.4035
WSS	251.4035
AIC	57.2706
MSC	3.1463

## Lampiran 10. Dokumentasi



**Gambar 16. Analisis menggunakan spektrofotometer UV-Vis**



**Gambar 17. Film hidrogel**

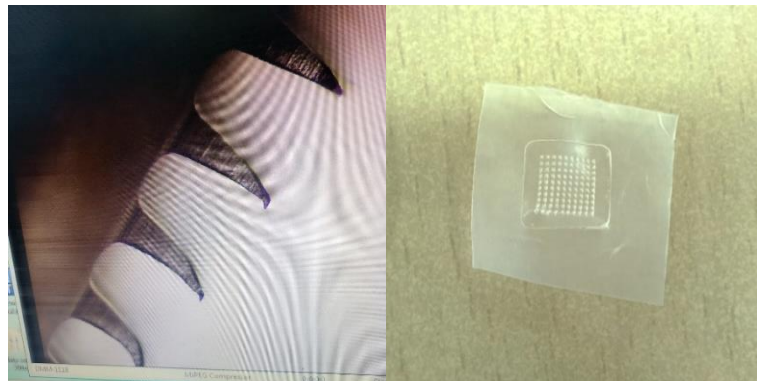


**Gambar 18. Uji *swelling* film hidrogel**





**Gambar 19. Proses pembuatan, pencetakan, dan pengeringan HFM**



**Gambar 20. Uji kekuatan mekanik dan uji kemampuan penetrasi dengan Parafilm<sup>®</sup> M**



**Gambar 21. Uji permeasi ex vivo dengan alat-alat yang dimodifikasi**