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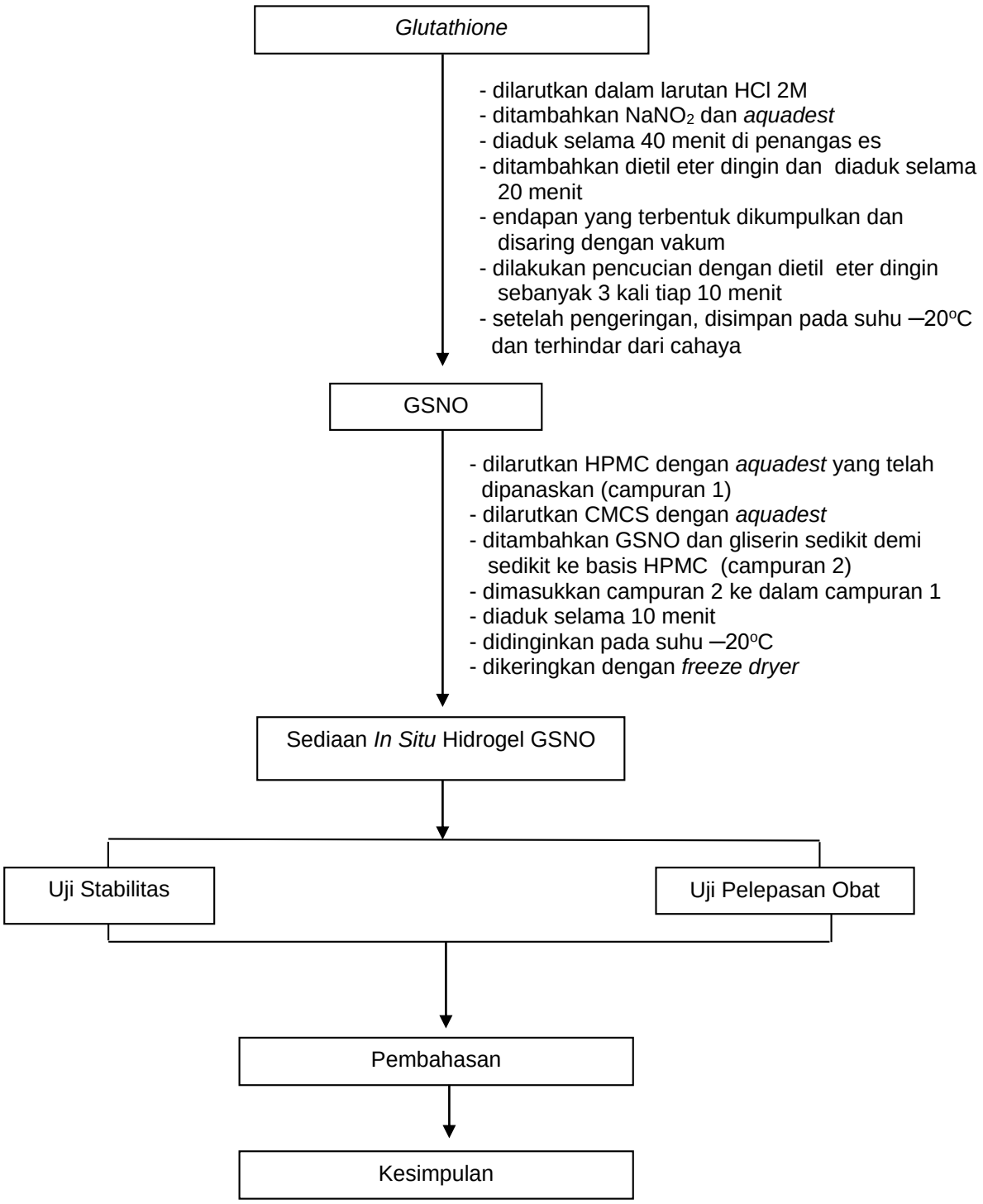
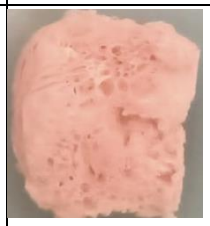
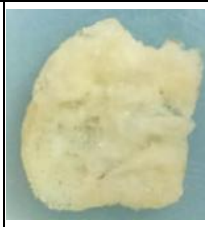
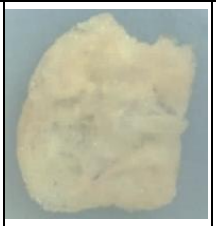
LAMPIRAN

Lampiran 1. Skema kerja umum

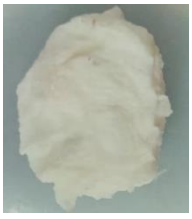


Lampiran 2. Hasil uji stabilitas organoleptis sediaan *in situ* hidrogel GSNO

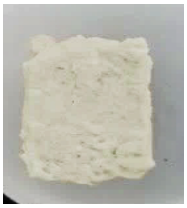
Tabel 5. Hasil organoleptis sediaan *in situ* hidrogel GSNO pada suhu 25±3^{o}C

Pengamatan	F1	F2	F3	F4
Hari ke-0				
Hari ke-7				
Hari ke-14				

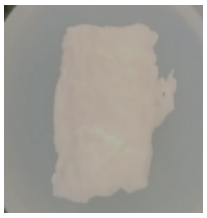
Tabel 6. Hasil organoleptis sediaan *in situ* hidrogel GSNO pada suhu 8^{o}C

Pengamatan	F1	F2	F3	F4
Hari ke-0				
Hari ke-7				

Lanjutan Tabel 6. Hasil organoleptis sediaan *in situ* hidrogel GSNO pada suhu 8^{o}C

Pengamatan	F1	F2	F3	F4
Hari ke-14				

Tabel 7. Hasil organoleptis sediaan *in situ* hidrogel GSNO pada suhu –20^{o}C

Pengamatan	F1	F2	F3	F4
Hari ke-0				
Hari ke-7				
Hari ke-14				

Lampiran 3. Hasil uji stabilitas pH sediaan *in situ* hidrogel GSNO

Tabel 8. Data uji stabilitas pH sediaan *in situ* hidrogel GSNO pada suhu −20ºC

Formula	Hari ke-		
	0	7	14
F1	5,70	5,72	5,71
	5,69	5,68	5,69
	5,72	5,69	5,70
Rata-rata±SD	5,70± 0,01	5,69± 0,02	5,70± 0,01
F2	5,91	5,80	5,89
	5,88	5,88	5,85
	5,89	5,84	5,77
Rata-rata±SD	5,89 ± 0,01	5,84 ± 0,04	5,87 ± 0,02
F3	6,26	6,24	6,19
	6,25	6,22	6,23
	6,23	6,18	6,24
Rata-rata±SD	6,24 ± 0,01	6,21 ± 0,03	6,22 ± 0,02
F4	7,39	7,36	7,48
	7,36	7,40	7,37
	7,37	7,43	7,32
Rata-rata±SD	7,37 ± 0,01	7,39 ± 0,03	7,39 ± 0,08

Tabel 9. Data uji stabilitas pH sediaan *in situ* hidrogel GSNO pada suhu 8ºC

Formula	Hari ke-		
	0	7	14
F1	5,70	5,52	5,13
	5,69	5,55	5,15
	5,72	5,51	5,11
Rata-rata±SD	5,70 ± 0,01	5,52 ± 0,02	5,13 ± 0,02
F2	5,91	5,46	5,23
	5,88	5,49	5,25
	5,89	5,50	5,22
Rata-rata±SD	5,89 ± 0,01	5,48 ± 0,02	5,23 ± 0,01
F3	6,26	5,74	5,30
	6,25	5,72	5,31
	6,23	5,76	5,28
Rata-rata±SD	6,24 ± 0,01	5,74 ± 0,03	5,29 ± 0,01
F4	7,39	7,43	7,40
	7,36	7,40	7,38
	7,37	7,33	7,32
Rata-rata±SD	7,37 ± 0,01	7,38 ± 0,05	7,36 ± 0,04

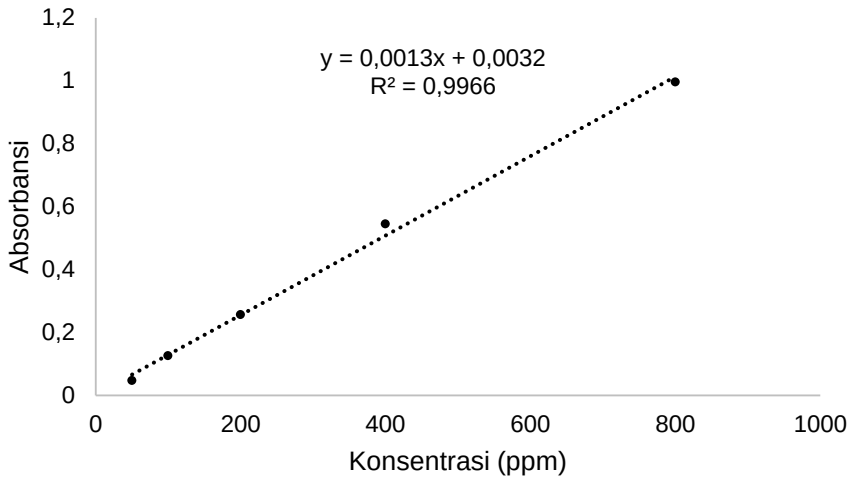
Tabel 10. Data uji stabilitas pH sediaan *in situ* hidrogel GSNO pada suhu 25±3^{o}C

Formula	Hari ke-		
	0	**7**	**14**
F1	5,70	5,38	5,04
	5,69	5,39	5,05
	5,72	5,36	5,09
Rata-rata±SD	5,70 ± 0,01	5,37 ± 0,01	5,06 ± 0,02
F2	5,91	5,48	5,13
	5,88	5,32	5,17
	5,89	5,39	5,15
Rata-rata±SD	5,89 ± 0,01	5,39 ± 0,08	5,15 ± 0,02
F3	6,26	5,71	5,46
	6,25	5,75	5,44
	6,23	5,70	5,42
Rata-rata±SD	6,24 ± 0,01	5,72 ± 0,02	5,44± 0,02
F4	7,39	7,41	7,38
	7,36	7,42	7,40
	7,37	7,37	7,35
Rata-rata±SD	7,37 ± 0,01	7,40 ± 0,02	7,37 ± 0,02

Lampiran 4. Hasil uji stabilitas kandungan obat sediaan *in situ* hidrogel GSNO

Tabel 11. Kurva baku GSNO

Konsentrasi	Absorbansi
800	0,996
400	0,545
200	0,257
100	0,127
50	0,048



Gambar 12. Grafik kurva baku GSNO

Tabel 12. Data uji stabilitas kandungan obat sediaan *in situ* hidrogel GSNO pada suhu 25±3ºC

Formula	Hari ke					
	0		7		14	
	Abs	%Kandungan obat	Abs	%Kandungan obat	Abs	%Kandungan obat
F1	0,252	95,69	0,071	26,07	0,036	12,61
	0,256	97,12	0,072	26,46	0,032	11,07
	0,258	98,00	0,075	27,46	0,033	11,46
Rata-rata±SD		96,97 ± 1,17		26,71 ± 0,80		11,33 ± 0,80
F2	0,139	94,10	0,034	21,34	0,022	13,02
	0,141	95,49	0,038	24,11	0,024	14,41
	0,145	98,26	0,033	20,65	0,020	11,64
Rata-rata±SD		95,95 ± 2,11		22,03 ± 1,83		11,33 ± 0,96
F3	0,126	94,46	0,038	26,76	0,020	12,92
	0,130	97,53	0,040	28,05	0,017	10,61
	0,128	96,00	0,041	29,07	0,016	9,84
Rata-rata±SD		96,00 ± 1,53		28,05 ± 1,17		11,12 ± 1,60

Tabel 13. Data uji stabilitas kandungan obat sediaan *in situ* hidrogel GSNO pada suhu 8ºC

Formula	Hari ke					
	0		7		14	
	Abs	%Kandungan obat	Abs	%Kandungan obat	Abs	%Kandungan obat
F1	0,252	95,69	0,189	71,46	0,036	20,30
	0,256	97,12	0,190	71,84	0,058	21,07
	0,258	98,00	0,192	72,61	0,060	21,84
Rata-rata±SD		96,97 ± 1,17		71,97 ± 0,58		21,07 ± 0,76
F2	0,139	94,10	0,109	73,31	0,039	24,80
	0,141	95,49	0,112	75,39	0,045	28, 96
	0,145	98,26	0,108	72, 62	0,043	27,58
Rata-rata±SD		95,95 ± 2,11		73,78 ± 1,44		27,11 ± 2,11
F3	0,126	94,46	0,105	78, 30	0,039	27,53
	0,130	97,53	0,107	79,84	0,035	24,46
	0,128	96,00	0,110	82,15	0,037	26,00
Rata-rata±SD		96 ± 1,53		80,10 ± 1,93		26,00 ± 1,53

Tabel 14. Data uji stabilitas kandungan obat sediaan *in situ* hidrogel GSNO pada suhu −20ºC

Formula	Hari ke					
	0		7		14	
	Abs	%Kandungan obat	Abs	%Kandungan obat	Abs	%Kandungan obat
F1	0,252	95,69	0,258	98,00	0,254	96,46
	0,256	97,12	0,254	96,46	0,255	96,84
	0,258	98,00	0,256	97,23	0,251	96,20
Rata-rata±SD		96,97 ± 1,17		97,23 ± 0,76		96,20 ± 0,80
F2	0,139	94,10	0,141	95,49	0,142	96,18
	0,141	95,49	0,138	93,41	0,139	94,10
	0,145	98,26	0,139	94,10	0,140	94,80
Rata-rata±SD		95,95 ± 2,11		94,34 ± 1,05		95,03 ± 1,05
F3	0,126	94,46	0,125	96,00	0,126	94,46
	0,130	97,53	0,129	95,48	0,128	96,00
	0,128	96,00	0,128	96,76	0,129	96,76
Rata-rata±SD		96,00 ± 1,53		95,48 ± 1,60		95,74 ± 1,17

Lampiran 5. Hasil Uji Pelepasan Secara *In Vitro*

Tabel 15. Data uji pelepasan secara *in vitro* F1

Waktu (Jam)	Abs	Konsentasi (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	GSNO yang terlepas (mg)	%Pelepasan GSNO	Rata-rata ± SD
0,25	0,096	71,38	1	7,13	0	7,13	7,13	7,34 ± 0,23
	0,098	72,92	1	7,29	0	7,29	7,29	
	0,102	76,00	1	7,60	0	7,60	7,60	
0,5	0,186	140,61	1	14,06	0,14	14,20	14,20	14,33 ± 0,22
	0,186	140,61	1	14,06	0,14	14,20	14,20	
	0,191	144,46	1	14,44	0,14	14,59	14,59	
1	0,207	156,76	1	15,67	0,29	15,97	15,97	16,10 ± 0,22
	0,207	156,76	1	15,67	0,29	15,97	15,97	
	0,212	160,61	1	16,06	0,30	16,36	16,36	
2	0,265	201,38	1	20,13	0,49	20,63	20,63	20,76 ± 0,22
	0,265	201,38	1	20,13	0,49	20,63	20,63	
	0,270	205,23	1	20,52	0,51	21,03	21,03	
3	0,268	203,69	1	20,36	0,70	21,07	21,07	21,30 ± 0,41
	0,268	203,69	1	20,36	0,70	21,07	21,07	
	0,277	210,61	1	21,06	0,72	21,78	21,78	
4	0,301	229,07	1	22,90	0,93	23,83	23,83	23,89 ± 0,10
	0,301	229,07	1	22,90	0,93	23,83	23,83	
	0,303	230,61	1	23,06	0,95	24,01	24,01	

Lanjutan Tabel 15. Data uji pelepasan secara *in vitro* F1

Waktu (Jam)	Abs	Konsentrasi (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	GSNO yang terlepas (mg)	%Pelepasan GSNO	Rata-rata ± SD
	0,304	231,38	1	23,13	1,16	24,30	24,30	
5	0,308	234,46	1	23,44	1,16	24,61	24,61	24,56 ± 0,24
	0,310	236,00	1	23,60	1,18	24,78	24,78	
	0,316	240,61	1	24,06	1,40	25,46	25,46	
6	0,316	240,61	1	24,06	1,40	25,46	25,46	25,62 ± 0,28
	0,322	245,23	1	24,52	1,43	25,95	25,95	
	0,320	243,69	1	24,36	1,64	26,01	26,01	
7	0,320	243,69	1	24,36	1,65	26,01	26,01	26,02 ± 0,01
	0,320	243,69	1	24,36	1,67	26,04	26,04	
	0,320	243,69	1	24,36	1,89	26,26	26,26	
8	0,324	246,76	1	24,67	1,89	26,57	26,57	26,52 ± 0,25
	0,326	248,30	1	24,83	1,92	26,75	26,75	
	0,399	304,46	1	30,44	2,19	32,64	32,64	
24	0,395	301,38	1	30,13	2,19	32,33	32,33	32,44 ± 0,16
	0,395	301,38	1	30,13	2,22	32,36	32,36	

Tabel 16. Data uji pelepasan secara *in vitro* F2

Waktu (Jam)	Serapan	Konsentrasi (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	GSNO yang terlepas (mg)	%Pelepasan GSNO	Rata-rata ± SD
	0,096	71,38	1	7,13	0	7,13	7,13	
0,25	0,093	69,07	1	6,90	0	6,90	6,90	7,06 ± 0,13
	0,096	71,38	1	7,13	0	7,13	7,13	
	0,183	138,30	1	13,83	0,13	13,96	13,96	
0,5	0,186	140,61	1	14,06	0,14	14,20	14,20	14,17 ± 0,19
	0,188	142,15	1	14,21	0,14	14,35	14,35	
	0,195	147,53	1	14,75	0,28	15,03	15,03	
1	0,195	147,53	1	14,75	0,28	15,04	15,04	15,04 ± 0,00
	0,195	147,538	1	14,75	0,28	15,04	15,04	
	0,207	156,76	1	15,67	0,44	16,11	16,11	
2	0,210	159,07	1	15,90	0,44	16,35	16,35	16,32 ± 0,19
	0,212	160,61	1	16,06	0,45	16,51	16,51	
	0,235	178,30	1	17,83	0,62	18,45	18,45	
3	0,238	180,61	1	18,06	0,62	18,68	18,68	18,66 ± 0,19
	0,240	182,15	1	18,21	0,63	18,84	18,84	
	0,238	180,61	1	18,06	0,80	18,86	18,86	
4	0,241	182,92	1	18,29	0,81	19,10	19,10	19,07 ± 0,20
	0,243	184,46	1	18,44	0,81	19,26	19,26	
	0,261	198,30	1	19,83	0,99	20,83	20,83	
5	0,261	198,30	1	19,83	1,00	20,83	20,83	20,99 ± 0,27
	0,267	202,92	1	20,29	1,01	21,31	21,31	

Lanjutan Tabel 16. Data uji pelepasan secara *in vitro* F2

Waktu (Jam)	Abs	Konsentrasi (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	GSNO yang terlepas (mg)	%Pelepasan GSNO	Rata-rata ± SD
	0,265	201,38	1	20,13	1,20	21,33	21,33	
6	0,265	201,38	1	20,13	1,21	21,34	21,34	21,40 ± 0,09
	0,267	202,92	1	20,29	1,22	21,51	21,51	
	0,275	209,07	1	20,90	1,41	22,31	22,31	
7	0,275	209,07	1	20,90	1,41	22,32	22,32	22,38 ± 0,09
	0,277	210,61	1	21,06	1,43	22,49	22,49	
	0,279	212,15	1	21,21	1,62	22,83	22,83	
8	0,279	212,15	1	21,21	1,63	22,84	22,84	22,90 ± 0,10
	0,281	213,69	1	21,36	1,64	23,01	23,01	
	0,319	242,92	1	24,29	1,86	26,15	26,15	
24	0,322	245,23	1	24,52	1,87	26,40	26,40	26,32 ± 0,14
	0,322	245,23	1	24,52	1,89	26,41	26,41	

Tabel 17. Data uji pelepasan secara *in vitro* F3

Waktu (Jam)	Abs	Konsentrasi (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	GSNO yang terlepas (mg)	%Pelepasan GSNO	Rata-rata ± SD
	0,090	66,76	1	6,67	0	6,67	6,67	
0,25	0,090	66,76	1	6,67	0	6,67	6,67	6,75 ± 0,13
	0,093	69,07	1	6,90	0	6,90	6,90	
	0,180	136,00	1	13,60	0,13	13,73	13,73	
0,5	0,180	136,00	1	13,60	0,13	13,73	13,73	13,81 ± 0,13
	0,183	138,30	1	13,83	0,13	13,96	13,96	
	0,201	152,15	1	15,21	0,28	15,50	15,50	
1	0,201	152,15	1	15,21	0,28	15,50	15,50	15,63 ± 0,22
	0,206	156,00	1	15,60	0,29	15,89	15,89	
	0,207	156,76	1	15,67	0,44	16,12	16,12	
2	0,210	159,07	1	15,90	0,44	16,35	16,35	16,33 ± 0,19
	0,212	160,61	1	16,06	0,45	16,51	16,51	
	0,214	162,15	1	16,21	0,60	16,82	16,82	
3	0,214	162,15	1	16,21	0,60	16,82	16,82	16,87 ± 0,09
	0,216	163,69	1	16,36	0,61	16,98	16,98	
	0,219	166,00	1	16,60	0,77	17,37	17,37	
4	0,219	166,00	1	16,60	0,77	17,37	17,37	17,42 ± 0,09
	0,221	167,53	1	16,75	0,78	17,54	17,54	
	0,220	166,76	1	16,67	0,93	17,61	17,61	
5	0,220	166,76	1	16,67	0,94	17,61	17,61	17,62 ± 0,00
	0,220	166,76	1	16,67	0,95	17,62	17,62	

Lanjutan Tabel 17. Data uji pelepasan secara *in vitro* F3

Waktu (Jam)	Abs	Konsentrasi (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	GSNO yang terlepas (mg)	%Pelepasan GSNO	Rata-rata ± SD
	0,219	166,00	1	16,60	1,10	17,70	17,70	
6	0,219	166,00	1	16,6	1,10	17,70	17,70	17,76 ± 0,09
	0,221	167,53	1	16,75	1,12	17,87	17,87	
	0,222	168,30	1	16,83	1,27	18,10	18,10	
7	0,222	168,30	1	16,83	1,27	18,10	18,10	18,24 ± 0,23
	0,227	172,15	1	17,21	1,29	18,50	18,50	
	0,235	178,30	1	17,83	1,45	19,28	19,28	
8	0,235	178,30	1	17,83	1,45	19,28	19,28	19,34 ± 0,09
	0,237	179,84	1	17,98	1,47	19,45	19,45	
	0,308	234,46	1	23,44	1,68	25,13	25,13	
24	0,311	236,76	1	23,67	1,69	25,36	25,36	25,29 ± 0,14
	0,311	236,76	1	23,67	1,70	25,38	25,38	

Lampiran 6. Perhitungan

Lampiran 6.1 Contoh perhitungan kandungan obat sediaan *in situ* hidrogel GSNO pada formula F1 replikasi 1

Diketahui:

10 mg sediaan *in situ* hidrogel GSNO $\xrightarrow{\text{dilarutkan}}$ 10 mL aquadest (diukur absorbansinya)

Absorbansi F1 replikasi 1= 0,25

Kandungan GSNO dalam formula 1 secara teoritis= 0,2 gram

Persamaan kurva baku y = 0,0013x + 0,0032

Maka,

0,252 = 0,0013x + 0,0032

$$x = \frac{0,252 - 0,0032}{0,0013}$$

x = 191,38 µg/mL

$$\text{Jumlah GSNO dalam formula} = \frac{X \,.\, fp.\ 10\ mL}{\text{berat } \textit{in situ} \text{ hidrogel yang ditimbang}}$$

$$\text{Jumlah GSNO dalam formula 1} = \frac{191,38\ \mu g/ml.\ 1\ .\ 10\ ml}{0,01\ g}$$

$$= 0,19 \text{ gram}$$

$$\%\text{Kandungan obat} = \frac{\text{Jumlah obat hasil analisis}}{\text{Jumlah obat secara teoritis}} \times 100\%$$

$$= \frac{0,19 \text{ gram}}{0,2 \text{ gram}} \times 100\% = 95,69\%$$

Lampiran 6.2 Contoh perhitungan pelepasan obat sediaan *in situ* hirogel GSNO pada formula 1 replikasi 1

Diketahui : Abs F1 jam ke-1 replikasi 1 = 0,207

Persamaan kurva baku y = 0,0013x + 0,0032

Faktor pengenceran = 1x

Maka,

0,207 = 0,0013x + 0,0032

$x = \frac{0,207 - 0,0032}{0,0013} =$ 156,76 µg/mL

Konsentrasi obat jam ke-1 dalam media pelepasan

=> kadar terukur x jumlah media pelepasan x faktor pengenceran

=> 156,76 µg/mL x 100 mL x 1

=> 15,67 mg

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

=> Faktor koreksi = $\frac{\text{Konsentrasi obat}}{1000}$ + faktor koreksi pada jam ke 0,5

=> Faktor koreksi = $\frac{156,76\ \mu g}{1000}$ + 0,14 mg = 0,29 mg

=> Faktor koreksi = 0,15 mg + 0,14 mg = 0,29 mg

Jumlah obat yang terlepas = konsentrasi obat dalam media pelepasan + faktor koreksi

=> Jumlah GSNO yang terlepas = 15,67 mg + 0,29 mg = 15,96 mg

%Pelepasan GSNO = $\frac{15,96\ mg}{100\ mg}$ x 100% = 15,96 %

Lampiran 7. Data hasil analisis statistika

Lampiran 7.1 Uji pH sediaan *in situ* hidrogel sebelum penyimpanan

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	Df	Sig.	Statistic	df	Sig.
pHsebelumpenyimpan	F1	.253	3	.	.964	3	.637
	F2	.253	3	.	.964	3	.637
	F3	.253	3	.	.964	3	.637
	F4	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

ANOVA

pHsebelumpenyimpan

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	5.029	3	1.676	7183.750	.000
Within Groups	.002	8	.000		
Total	5.030	11			

Multiple Comparisons

Dependent Variable: pHsebelumpenyimpan

Tukey HSD

		Mean Difference			95% Confidence Interval	
(I) Formula	(J) Formula	(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
F1	F2	-.19000*	.01247	.000	-.2299	-.1501
	F3	-.54333*	.01247	.000	-.5833	-.5034
	F4	-1.67000*	.01247	.000	-1.7099	-1.6301
F2	F1	.19000*	.01247	.000	.1501	.2299
	F3	-.35333*	.01247	.000	-.3933	-.3134
	F4	-1.48000*	.01247	.000	-1.5199	-1.4401
F3	F1	.54333*	.01247	.000	.5034	.5833
	F2	.35333*	.01247	.000	.3134	.3933
	F4	-1.12667*	.01247	.000	-1.1666	-1.0867
F4	F1	1.67000*	.01247	.000	1.6301	1.7099
	F2	1.48000*	.01247	.000	1.4401	1.5199
	F3	1.12667*	.01247	.000	1.0867	1.1666

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

Lampiran 7.2 Uji stabilitas pH sediaan *in situ* hidrogel pada suhu –20ºC

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for Harike0	.283	12	.009	.766	12	.004
Standardized Residual for Harike7	.277	12	.012	.765	12	.004
Standardized Residual for Harike14	.277	12	.012	.775	12	.005

a. Lilliefors Significance Correction

Friedman Test

Test Statistics[a]

N	9
Chi-Square	.667
df	2
Asymp. Sig.	.717

a. Friedman Test

Lampiran 7.3 Uji stabilitas pH sediaan *in situ* hidrogel pada suhu 8ºC

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for Harike0	.283	12	.009	.766	12	.004
Standardized Residual for Harike7	.381	12	.000	.655	12	.000
Standardized Residual for Harike14	.427	12	.000	.616	12	.000

a. Lilliefors Significance Correction

Friedman Test

Test Statistics[a]

N	12
Chi-Square	14.000
df	2
Asymp. Sig.	.001

a. Friedman Test

Pairwise Comparisons

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
Harike14-Harike7	1.000	.408	2.449	.014	.043
Harike14-Harike0	1.500	.408	3.674	.000	.001
Harike7-Harike0	.500	.408	1.225	.221	.662

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.

Asymptotic significances (2-sided tests) are displayed. The significance level is .05.

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Lampiran 7.4 Uji stabilitas pH sediaan *in situ* hidrogel pada suhu 25±3ºC

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for Harike0	.283	12	.009	.766	12	.004
Standardized Residual for Harike7	.351	12	.000	.682	12	.001
Standardized Residual for Harike14	.368	12	.000	.671	12	.000

a. Lilliefors Significance Correction

Friedman Test

Test Statistics[a]

N	12
Chi-Square	16.979
df	2
Asymp. Sig.	.000

a. Friedman Test

Pairwise Comparisons

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
Harike14-Harike7	1.125	.408	2.756	.006	.018
Harike14-Harike0	1.625	.408	3.980	.000	.000
Harike7-Harike0	.500	.408	1.225	.221	.662

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.

Asymptotic significances (2-sided tests) are displayed. The significance level is .05.

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Lampiran 7.5 Kandungan obat sediaan *in situ* hidrogel sebelum penyimpanan

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	formulasi	Statistic	df	Sig.	Statistic	df	Sig.
KandunganObat	F1	.253	3	.	.964	3	.637
	F2	.253	3	.	.965	3	.639
	F3	.175	3	.	1.000	3	.996

a. Lilliefors Significance Correction

ANOVA

KandunganObat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.003	2	1.002	.365	.708
Within Groups	16.450	6	2.742		
Total	18.453	8			

Multiple Comparisons

Dependent Variable: KandunganObat

Tukey HSD

		Mean			95% Confidence Interval	
(I) formulasi	(J) formulasi	Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
F1	F2	1.02333	1.35193	.741	-3.1248	5.1714
	F3	.97667	1.35193	.760	-3.1714	5.1248
F2	F1	-1.02333	1.35193	.741	-5.1714	3.1248
	F3	-.04667	1.35193	.999	-4.1948	4.1014
F3	F1	-.97667	1.35193	.760	-5.1248	3.1714
	F2	.04667	1.35193	.999	-4.1014	4.1948

Lampiran 7.6 Uji stabilitas kandungan obat sediaan *in situ* hidrogel pada suhu −20°C

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for Harike0	.173	9	.200*	.932	9	.503
Standardized Residual for Harike7	.167	9	.200*	.937	9	.555
Standardized Residual for Harike14	.187	9	.200*	.918	9	.372

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Mauchly's Test of Sphericity[a]

Measure: kandunganobatminus20

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Waktu	.695	2.544	2	.280	.766	.912	.500

Tests of Within-Subjects Effects

Measure: kandunganobatminus20

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Waktu	Sphericity Assumed	2.444	2	1.222	.938	.412
	Greenhouse-Geisser	2.444	1.533	1.594	.938	.394
	Huynh-Feldt	2.444	1.824	1.340	.938	.406
	Lower-bound	2.444	1.000	2.444	.938	.361
Error(Waktu)	Sphericity Assumed	20.852	16	1.303		
	Greenhouse-Geisser	20.852	12.263	1.700		
	Huynh-Feldt	20.852	14.592	1.429		
	Lower-bound	20.852	8.000	2.606		

Pairwise Comparisons

Measure: kandunganobatsuhuminus20

(I) Waktu	(J) Waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.624	.621	1.000	-1.248	2.497
	3	.651	.594	.914	-1.139	2.441
2	1	-.624	.621	1.000	-2.497	1.248
	3	.027	.362	1.000	-1.064	1.118
3	1	-.651	.594	.914	-2.441	1.139
	2	-.027	.362	1.000	-1.118	1.064

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Keterangan waktu : 1= hari ke-0; 2= hari ke-7; 3= hari ke-14

Lampiran 7.7 Uji stabilitas kandungan obat sediaan *in situ* hidrogel pada suhu 8^{o}C

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for Harike0	.173	9	.200*	.932	9	.503
Standardized Residual for Harike7	.263	9	.072	.866	9	.110
Standardized Residual for Harike14	.162	9	.200*	.935	9	.529

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Mauchly's Test of Sphericity[a]

Measure: kandunganobatsuhu8

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Waktu	.969	.223	2	.894	.970	1.000	.500

Tests of Within-Subjects Effects

Measure: kandunganobatsuhu8

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Waktu	Sphericity Assumed	24465.699	2	12232.849	1541.337	.000
	Greenhouse-Geisser	24465.699	1.939	12616.774	1541.337	.000
	Huynh-Feldt	24465.699	2.000	12232.849	1541.337	.000
	Lower-bound	24465.699	1.000	24465.699	1541.337	.000
Error(Waktu)	Sphericity Assumed	126.984	16	7.937		
	Greenhouse-Geisser	126.984	15.513	8.186		
	Huynh-Feldt	126.984	16.000	7.937		
	Lower-bound	126.984	8.000	15.873		

Pairwise Comparisons

Measure: kandunganobatsuhu8

(I) Waktu	(J) Waktu	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1	2	20.916*	1.439	.000	17.598	24.233
	3	71.691*	1.247	.000	68.814	74.568
2	1	-20.916*	1.439	.000	-24.233	-17.598
	3	50.776*	1.290	.000	47.800	53.751
3	1	-71.691*	1.247	.000	-74.568	-68.814
	2	-50.776*	1.290	.000	-53.751	-47.800

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Keterangan waktu : 1= hari ke-0; 2= hari ke-7; 3= hari ke-14

Lampiran 7.8 Uji stabilitas kandungan obat sediaan *in situ* hidrogel pada suhu 25±3ºC

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for Harike0	.173	9	.200*	.932	9	.503
Standardized Residual for Harike7	.230	9	.186	.901	9	.258
Standardized Residual for Harike14	.144	9	.200*	.978	9	.955

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Mauchly's Test of Sphericity[a]

Measure: kandunganobatsuhu25

					Epsilon[b]		
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Waktu	.780	1.738	2	.419	.820	1.000	.500

Tests of Within-Subjects Effects

Measure: kandunganobatsuhu25

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Waktu	Sphericity Assumed	36904.262	2	18452.131	3468.208	.000
	Greenhouse-Geisser	36904.262	1.640	22508.100	3468.208	.000
	Huynh-Feldt	36904.262	2.000	18452.131	3468.208	.000
	Lower-bound	36904.262	1.000	36904.262	3468.208	.000
Error(Waktu)	Sphericity Assumed	85.126	16	5.320		
	Greenhouse-Geisser	85.126	13.117	6.490		
	Huynh-Feldt	85.126	16.000	5.320		
	Lower-bound	85.126	8.000	10.641		

Pairwise Comparisons

Measure: kandunganobatsuhu25

(I) Waktu	(J) Waktu	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	70.710*	1.048	.000	68.293	73.127
	3	84.353*	.866	.000	82.356	86.349
2	1	-70.710*	1.048	.000	-73.127	-68.293
	3	13.643*	1.303	.000	10.637	16.648
3	1	-84.353*	.866	.000	-86.349	-82.356
	2	-13.643*	1.303	.000	-16.648	-10.637

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Keterangan waktu : 1= hari ke-0; 2= hari ke-7; 3= hari ke-14

Lampiran 7.9 Uji pelepasan secara *in vitro*

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formula	Statistic	df	Sig.	Statistic	df	Sig.
Pelepasan	F1	.354	3	.	.822	3	.168
	F2	.373	3	.	.779	3	.065
	F3	.359	3	.	.810	3	.138

a. Lilliefors Significance Correction

ANOVA

Pelepasan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	89.726	2	44.863	1916.318	.000
Within Groups	.140	6	.023		
Total	89.867	8			

Multiple Comparisons

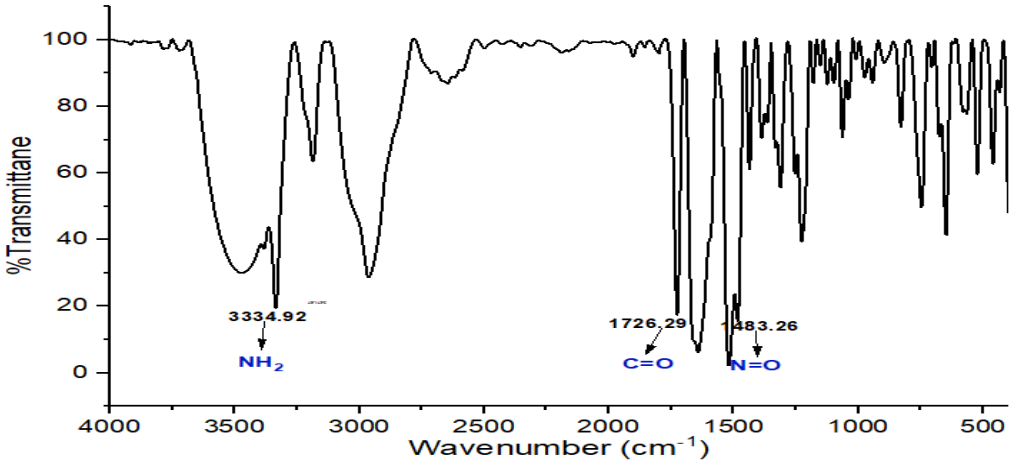
Dependent Variable: Pelepasan

Tukey HSD

		Mean Difference			95% Confidence Interval	
(I) Formula	(J) Formula	(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
F1	F2	6.12333*	.12493	.000	5.7400	6.5067
	F3	7.15333*	.12493	.000	6.7700	7.5367
F2	F1	-6.12333*	.12493	.000	-6.5067	-5.7400
	F3	1.03000*	.12493	.000	.6467	1.4133
F3	F1	-7.15333*	.12493	.000	-7.5367	-6.7700
	F2	-1.03000*	.12493	.000	-1.4133	-.6467

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

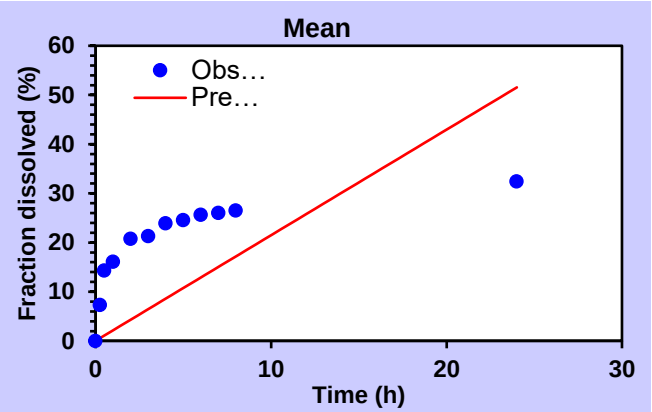
Lampiran 8. Spektra FT-IR serbuk GSNO



No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	354.9	87.207	13.517	368.4	341.4	0.781	0.866
2	391.55	31.587	68.394	416.62	368.4	10.692	10.687
3	433.98	84.111	7.645	441.7	418.55	1.071	0.454
4	460.99	62.815	29.038	495.71	443.63	4.268	2.813
5	522.71	59.679	40.297	542	497.63	4.103	4.098
6	565.14	77.873	6.725	572.86	543.93	1.92	0.539
7	648.08	41.366	43.93	665.44	624.94	7.708	5.215
8	705.95	91.885	7.623	719.45	694.37	0.497	0.439
9	746.45	49.632	49.755	796.6	719.45	10.071	9.905
10	829.39	73.899	25.678	858.32	804.32	2.748	2.648
11	894.97	93.158	6.289	918.12	860.25	1.087	0.95
12	943.19	87.046	9.432	958.62	920.05	1.276	0.785
13	1062.78	70.647	22.229	1080.14	1049.28	2.745	1.781
14	1124.5	86.587	10.317	1138	1112.93	0.984	0.638
15	1151.5	92.311	7.759	1166.93	1139.93	0.455	0.464
16	1226.73	39.35	37.977	1244.09	1193.94	12.423	7.955
17	1311.59	55.614	23.117	1325.1	1282.66	5.547	2.326
18	1386.82	70.439	15.403	1408.04	1375.25	3.129	1.291
19	1436.97	61.055	38.894	1456.26	1409.96	3.913	3.925
20	1483.26	15.611	31.702	1494.83	1458.18	16.344	5.514
21	1519.91	2.246	46.606	1566.2	1496.76	43.478	22.148
22	1641.42	6.177	93.275	1697.36	1568.13	76.066	75.726
23	1726.29	17.482	82.687	1774.51	1699.29	17.048	17.11
24	1799.59	95.796	4.25	1836.23	1774.51	0.481	0.479
25	1855.52	97.7	1.922	1870.95	1836.23	0.167	0.111
26	1901.81	94.888	4.699	1944.25	1870.95	0.701	0.572
27	2189.21	96.172	1.15	2281.79	2171.85	0.943	0.126
28	2499.75	97.407	2.617	2534.46	2453.45	0.397	0.4
29	2646.34	86.882	1.229	2659.84	2627.05	1.873	0.098
30	2713.84	89.916	2.574	2781.35	2696.48	2.395	0.577
31	3186.4	63.458	35.923	3257.77	3140.11	10.365	10.039
32	3334.92	19.485	38.941	3361.93	3259.7	28.242	11.006
33	3471.87	29.996	24.696	3682.11	3396.64	99.311	39.75

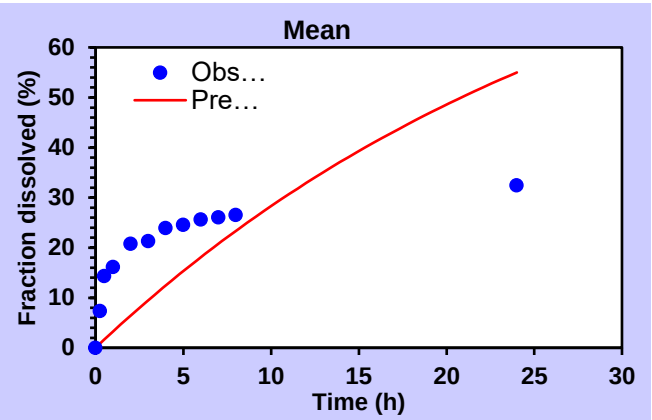
Lampiran 9. Kinetika pelepasan sediaan *in situ* hidrogel GSNO F1

Goodness of Fit	
Parameter	**No.1**
N_observed	12
DF	11
R_obs-pre	0,7103
Rsqr	-1,2715
Rsqr_adj	-1,2715
MSE	188,1940
MSE_root	13,7184
Weighting	1
SS	2070,1339
WSS	2070,1339
AIC	93,6244
MSC	-1,5582



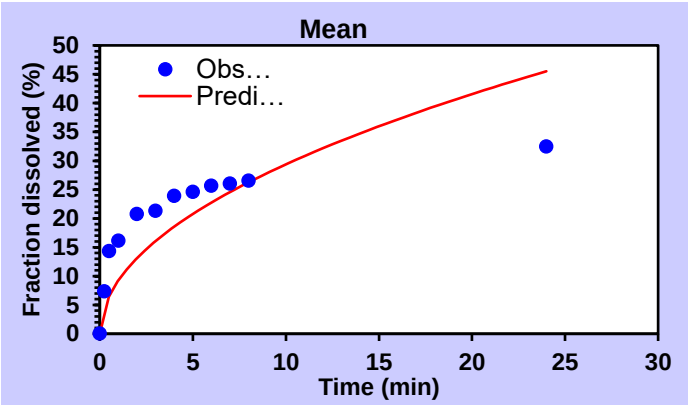
Gambar 13. Hasil analisis kinetika orde nol sediaan *in situ* hidrogel GSNO F1

Goodness of Fit	
Parameter	**No.1**
N_observed	12
DF	11
R_obs-pre	0,7755
Rsqr	-0,6809
Rsqr_adj	-0,6809
MSE	139,2655
MSE_root	11,8011
Weighting	1
SS	1531,9210
WSS	1531,9210
AIC	90,0113
MSC	-1,2571



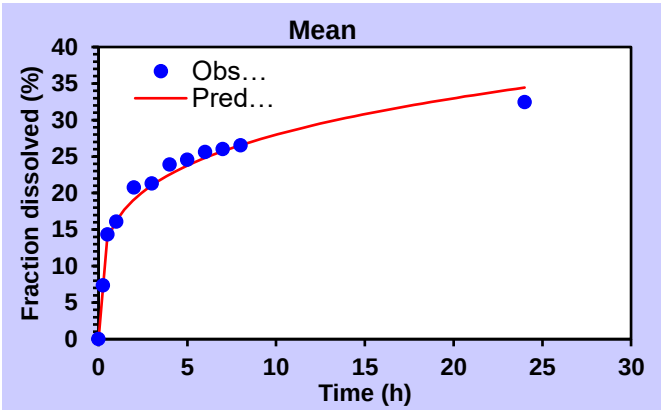
Gambar 14. Hasil analisis kinetika orde pertama sediaan *in situ* hidrogel GSNO F1

Goodness of Fit	
Parameter	**No.1**
N_observed	12
DF	11
R_obs-pre	0,9013
Rsqr	0,5356
Rsqr_adj	0,5356
MSE	38,4726
MSE_root	6,2026
Weighting	1
SS	423,1985
WSS	423,1985
AIC	74,5741
MSC	0,0293



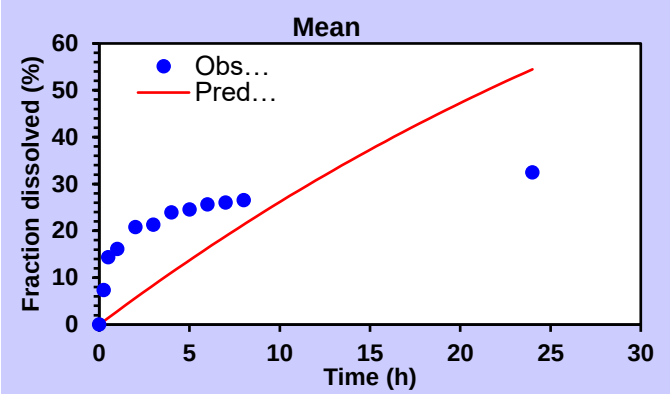
Gambar 15. Hasil analisis kinetika *Higuchi* sediaan *in situ* hidrogel GSNO F1

Goodness of Fit	
Parameter	**No.1**
N_observed	12
DF	10
R_obs-pre	0,9840
Rsqr	0,9679
Rsqr_adj	0,9647
MSE	2,9238
MSE_root	1,7099
Weighting	1
SS	29,2383
WSS	29,2383
AIC	44,5057
MSC	2,5350



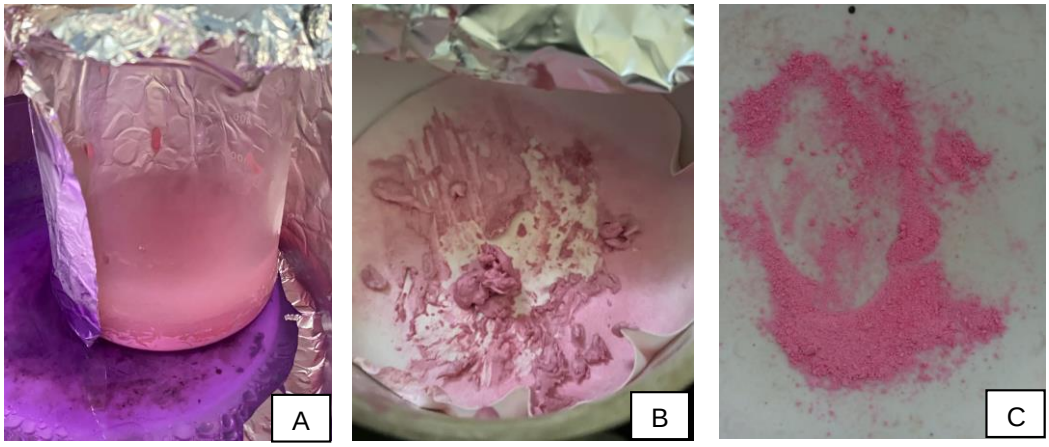
Gambar 16. Hasil analisis kinetika *Korsmeyer-Peppas* sediaan *in situ* hidrogel GSNO F1

Goodness of Fit	
Parameter	**No.1**
N_observed	12
DF	11
R_obs-pre	0,7527
Rsqr	-0,8782
Rsqr_adj	-0,8782
MSE	155,6100
MSE_root	12,4744
Weighting	1
SS	1711,7104
WSS	1711,7104
AIC	91,3430
MSC	-1,3681

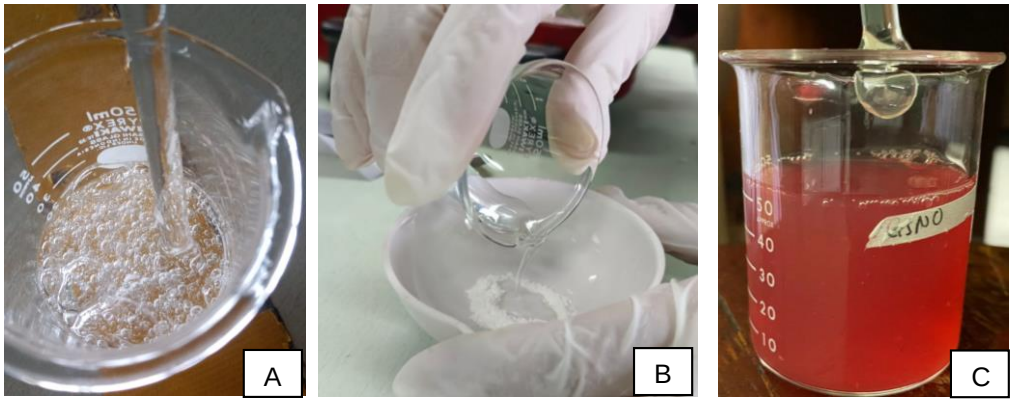


Gambar 17. Hasil analisis kinetika *Hixson-Crowell* sediaan *in situ* hidrogel GSNO F1

Lampiran 10. Dokumentasi



Gambar 18. Proses sintesis GSNO (a) pengendapan campuran GSH dan $NaNO_2$ dengan eter (b) pengeringan endapan GSNO dengan vakum (c) serbuk GSNO yang telah kering



Gambar 19. Formulasi *in situ* hidrogel (a) proses pelarutan HPMC (b) proses pelarutan CMCS (c) proses pelarutan GSNO dan CMCS ke dalam larutan HPMC

Gambar 20. Uji pH

Gambar 21. Uji pelepasan *in vitro*

Gambar 22. Analisis dengan spektrofotometer UV-Vis