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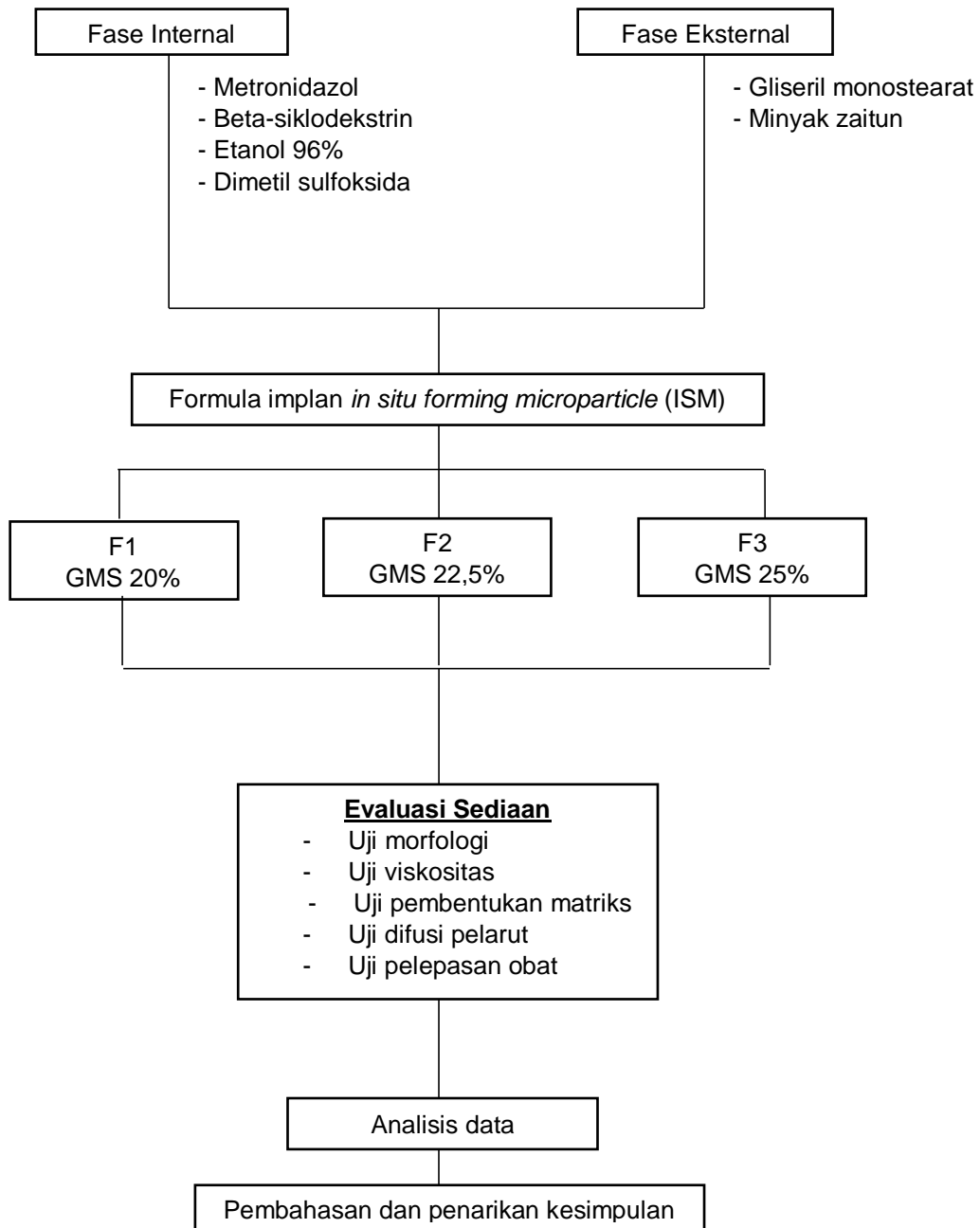
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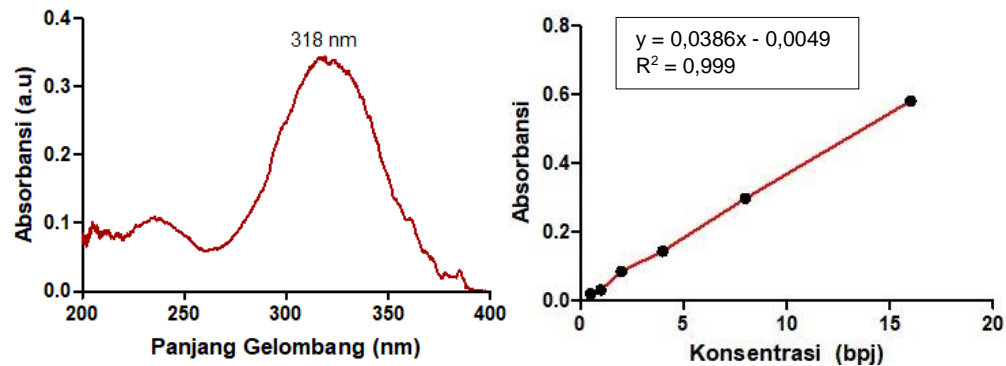
LAMPIRAN

Lampiran 1. Skema kerja penelitian



Lampiran 2. Panjang gelombang maksimum dan kurva baku

Lampiran 2.1 Panjang gelombang maksimum MTZ dan kurva kalibrasi



Tabel 6. Data absorbansi kurva baku MTZ dalam metanol + PBS pH 6,8

Konsentrasi	Serapan			Rata-rata \pm SD
	Replikasi 1	Replikasi 2	Replikasi 3	
0,00	0,00	0,00	0,00	0,00
0,5	0,027	0,005	0,00	0,01 \pm 0,01
1	0,046	0,033	0,005	0,03 \pm 0,02
2	0,083	0,074	0,053	0,07 \pm 0,02
4	0,175	0,143	0,13	0,15 \pm 0,02
8	0,35	0,303	0,295	0,32 \pm 0,03
16	0,667	0,58	0,574	0,61 \pm 0,05

Lampiran 3. Perhitungan data

Lampiran 3.1 Perhitungan formula

Jika setiap formula dibuat masing-masing sebanyak 4 g, maka jumlah bahan untuk tiap formula, yaitu:

a. Sediaan F1

- $MTZ = 2,5\% \times 4g = 100 \text{ mg}$
- $\beta\text{-CD} = 20\% \times 4 \text{ g} = 800 \text{ mg}$
- $DMSO = 27,5\% \times 4 \text{ g} = 1100 \text{ mg}$
- $GMS = 10\% \times 4 \text{ g} = 400 \text{ mg}$
- $\text{Minyak Zaitun} = 40\% \times 4 \text{ g} = 1600 \text{ mg}$

b. Sediaan F2

- $MTZ = 2,5\% \times 4g = 100 \text{ mg}$
- $B\text{-CD} = 20\% \times 4 \text{ g} = 800 \text{ mg}$
- $DMSO = 27,5\% \times 4 \text{ g} = 1100 \text{ mg}$
- $GMS = 11,25\% \times 4 \text{ g} = 450 \text{ mg}$
- $\text{Minyak Zaitun} = 40\% \times 4 \text{ g} = 1550 \text{ mg}$

c. Sediaan F3

- $MTZ = 2,5\% \times 4g = 100 \text{ mg}$
- $\beta\text{-CD} = 20\% \times 4 \text{ g} = 800 \text{ mg}$
- $DMSO = 27,5\% \times 4 \text{ g} = 1100 \text{ mg}$
- $GMS = 12,5\% \times 4 \text{ g} = 500 \text{ mg}$
- $\text{Minyak Zaitun} = 40\% \times 4 \text{ g} = 1500 \text{ mg}$

Lampiran 3.2 Perhitungan viskositas

Untuk F1 replikasi pertama diperoleh nilai 6,5 dengan faktor pengali 800 karena menggunakan spindle nomor 7 pada 50 rpm, maka nilai viskositas adalah: $6,5 \times 800 = 5200$ cPs

Lampiran 3.3 Perhitungan pelepasan obat

Untuk F1 jam ke-1 replikasi pertama diperoleh absorbansi 0,067 dengan persamaan regresi $y = 0,0386x - 0,0049$ dan faktor dilusi = 20,

$$x = \frac{y + 0,0049}{0,0386}$$

$$x = \frac{0,067 + 0,0049}{0,0386}$$

$$x = \frac{0,0719}{0,0386} = 1,86 \text{ } \mu\text{g/mL}$$

Konsentrasi dalam 100 mL = $1,86 \text{ } \mu\text{g/mL} \times 100 \text{ mL} \times 20 = 3,725 \text{ mg/mL}$

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

Faktor koreksi = $\frac{3,725}{1000} + 2,09 = 2,11 \text{ mg/mL}$

Jumlah obat yang terdisolusi = Konsentrasi dalam 100 mL + Faktor koreksi

Jumlah obat yang terdisolusi = $3,725 \text{ mg/mL} + 2,11 \text{ mg/mL}$

Jumlah obat yang terdisolusi = $5,84 \text{ mg/mL}$

Lampiran 3.4 Perhitungan fluks

Untuk F1 jam ke-168 replikasi pertama, konsentrasi obat adalah 12,12 $\mu\text{g/mL}$, faktor dilusi = 20, volume kompartemen = 100 mL, dan luas membran difusi adalah 7,5 ($p \times l = 3 \times 2,5 \text{ cm}$).

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

$$\text{Pelepasan} = \frac{12,12 \frac{\mu\text{g}}{\text{mL}} \times 20 \times 100 \text{ mL}}{7,5 \text{ cm}^2}$$

$$\text{Pelepasan} = 3232,47 \mu\text{g}/\text{cm}^2$$

Untuk permeat kumulatif, dilakukan penjumlahan dari pelepasan dari jam-jam sebelumnya sehingga diperoleh nilai pelepasan kumulatif pada jam

$$\text{ke-168 replikasi pertama} = 30824,18 \mu\text{g}/\text{cm}^2$$

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

$$\text{Fluks} = \frac{30824,18 \mu\text{g}/\text{cm}^2}{168 \text{ jam}}$$

$$\text{Fluks} = 183,48 \mu\text{g}/\text{cm}^2 \cdot \text{jam}$$

Lampiran 4. Tabel hasil evaluasi

Lampiran 4.1 Tabel uji viskositas

Tabel 7. Data hasil uji viskositas

Formula	Replikasi 1	Replikasi 2	Replikasi 3	Rata-rata \pm SD
F1	5200	5600	5200	5333,33 \pm 230,94
F2	10400	10800	10400	10533,33 \pm 230,94
F3	16000	16000	15600	15866,67 \pm 230,94

Lampiran 4.2 Tabel studi ukuran mikropartikel

Tabel 8. Data hasil studi ukuran mikropartikel

Ukuran Mikropartikel (μm)					
F1		F2		F3	
Sebelum	Sesudah	Sebelum	Sesudah	Sebelum	Sesudah
308,68	113,33	76,65	105,80	100,76	97,81
306,45	154,71	95,15	64,89	129,52	93,34
254,21	164,60	163,21	62,45	114,98	88,87
272,15	186,77	163,92	86,33	59,27	83,42
243,13	180,97	120,64	57,38	72,93	61,78
186,10	101,40	132,05	31,94	64,39	52,44
175,03	119,30	76,42	98,89	83,39	116,31
169,36	93,19	89,09	38,09	78,13	97,84
133,87	85,85	80,45	79,32	75,91	61,46
113,23	86,70	67,74	105,95	89,26	67,90
199,32	106,02	126,91	107,76	95,60	101,64
152,91	135,00	62,45	98,82	85,23	103,98
162,35	209,23	121,33	85,48	104,09	93,34
195,73	132,43	104,42	106,60	82,89	72,93
148,77	131,16	104,42	64,89	76,65	66,35
195,15	105,32	93,10	73,33	112,03	104,05
158,73	106,02	118,54	60,84	104,68	82,31
265,97	113,86	101,38	149,92	95,15	84,66
79,60	125,82	97,36	153,85	109,79	81,82
125,64	85,29	110,02	154,28	171,12	62,07

Lanjutan tabel 8

Ukuran Mikropartikel (μm)					
F1		F2		F3	
Sebelum	Sesudah	Sebelum	Sesudah	Sebelum	Sesudah
95,64	103,85	111,93	115,69	59,38	72,81
221,87	119,23	124,33	145,59	49,59	80,45
176,20	143,80	103,28	145,30	53,87	79,86
284,92	141,69	116,94	144,53	94,88	69,60
178,74	120,76	128,93	61,46	54,87	43,77
169,13	94,24	105,80	174,46	52,21	51,10
257,23	182,29	80,33	113,92	60,84	60,84
277,72	104,41	91,72	69,42	116,32	87,34
182,64	106,04	142,92	102,12	132,15	92,20
166,10	85,29	67,90	70,50	211,62	104,42
217,24	117,73	111,56	75,35	131,35	52,44
127,52	97,01	91,72	70,63	89,26	52,53
139,24	114,03	59,94	69,42	65,41	53,68
145,72	113,92	152,36	84,25	54,58	67,74
284,42	112,85	315,30	109,17	52,66	56,58
89,29	122,93	165,89	144,02	70,57	59,53
100,14	177,74	242,06	90,76	90,30	56,44
271,84	122,48	142,25	71,94	75,35	71,41
155,21	109,25	159,15	123,08	82,28	162,10
88,82	104,05	161,76	136,83	106,60	88,20
148,02	109,44	145,46	91,03	150,65	122,93
141,16	79,65	93,44	91,81	108,65	106,94
152,07	79,65	93,78	151,15	63,57	77,82
336,60	88,90	87,55	100,76	60,84	95,92
189,46	94,22	64,46	133,24	88,87	66,97
135,81	109,44	97,81	127,78	63,57	94,36
114,43	65,22	113,01	153,60	65,47	67,90
93,29	104,91	125,59	144,12	101,08	89,91
184,19	193,41	87,55	117,28	107,56	114,27
218,46	118,98	114,39	103,98	89,09	101,64

Lanjutan tabel 8

Ukuran Mikropartikel (μm)					
F1		F2		F3	
Sebelum	Sesudah	Sebelum	Sesudah	Sebelum	Sesudah
161,91	116,70	107,21	130,09	140,00	87,34
132,82	175,38	70,63	101,64	182,09	120,64
144,02	114,03	82,31	68,86	113,65	128,74
113,81	107,02	97,81	68,41	146,19	119,93
267,91	118,54	105,95	68,41	87,55	72,27
77,54	75,14	66,33	63,57	160,35	77,70
142,31	99,56	136,56	110,29	134,20	68,41
211,67	123,55	151,59	66,97	121,42	96,25
182,03	88,74	150,21	127,19	69,60	120,17
156,60	152,07	86,41	80,45	121,33	60,84
171,12	125,61	88,10	129,78	75,45	73,33
109,40	115,77	99,18	145,41	73,51	129,22
118,98	118,99	145,84	128,74	83,24	137,19
116,40	76,88	182,12	99,56	104,42	116,31
137,10	227,30	102,78	134,95	109,40	111,56
209,33	112,14	66,33	52,21	93,29	90,30
79,70	110,03	137,47	130,71	105,80	88,10
144,12	136,89	97,84	41,44	118,06	114,76
132,63	108,57	126,85	41,44	69,12	120,08
66,97	141,06	145,84	94,58	69,42	157,98
256,38	100,14	101,08	84,68	46,72	83,70
170,91	132,29	117,34	129,78	71,36	83,42
119,90	132,05	141,00	162,45	111,56	46,67
109,75	93,29	163,02	55,49	83,70	62,07
239,32	81,26	156,60	84,68	71,94	104,87
249,71	84,76	100,50	46,72	73,39	88,74
258,62	145,86	104,05	105,92	73,51	69,60
173,08	147,90	104,42	82,03	74,96	80,37

Lanjutan tabel 8

Ukuran Mikropartikel (μm)					
F1		F2		F3	
Sebelum	Sesudah	Sebelum	Sesudah	Sebelum	Sesudah
265,66	120,74	75,32	63,59	67,74	61,46
141,53	176,59	163,65	86,41	85,70	37,36
227,55	118,37	151,59	76,56	126,95	59,27
186,94	89,91	121,22	125,37	90,30	65,47
175,20	98,76	128,74	109,26	77,36	59,38
184,48	86,38	82,03	100,14	68,86	111,62
213,92	82,89	78,99	82,65	65,21	53,04
210,77	191,38	118,06	70,61	86,52	56,96
94,58	177,74	122,74	97,46	62,55	59,51
253,69	104,87	95,92	71,94	54,87	105,06
178,60	86,41	95,60	135,45	53,78	83,39
171,54	85,48	91,81	118,55	36,47	66,33
145,59	128,05	110,03	86,33	43,77	61,86
164,05	86,52	84,68	81,57	50,17	61,78
150,65	117,34	98,89	75,39	60,84	65,72
63,89	107,17	77,70	126,71	48,57	46,72
100,14	176,09	80,33	102,12	38,68	36,75
194,88	148,67	130,42	93,10	71,36	52,21
77,82	84,20	116,09	110,26	57,61	70,50
286,81	84,77	105,80	39,66	127,14	129,71
196,11	203,53	130,81	172,79	68,38	72,27
286,81	146,80	125,60	92,20	130,42	102,97

Lampiran 4.3 Tabel uji difusi pelarut

Tabel 9. Data hasil uji difusi pelarut

Formula	5 menit	Rata-rata	15 menit	Rata-rata	30 menit	Rata-rata	1 jam	Rata-rata ± SD
F1	14,84	14,48 ± 0,32	15,06	14,73 ± 0,28	15,24	15,03 ± 0,30	14,68	14,95 ± 0,29
	14,27		14,56		15,17		15,26	
	14,32		14,58		14,69		14,91	
F2	13,39	13,41 ± 0,20	14,27	14,36 ± 0,14	14,46	14,51 ± 0,19	14,56	14,73 ± 0,17
	13,62		14,52		14,72		14,90	
	13,23		14,30		14,34		14,74	
F3	12,57	12,59 ± 0,02	13,14	13,05 ± 0,08	13,68	13,75 ± 0,23	13,75	13,89 ± 0,35
	12,61		13,03		14,01		14,29	
	12,60		12,98		13,57		13,63	

Lanjutan tabel 9

Formula	2 jam	Rata-rata	3 jam	Rata-rata	4 jam	Rata-rata	24 jam	Rata-rata ± SD
F1	14,75	15,01 ± 0,29	17,02	17,29 ± 0,55	17,45	17,66 ± 0,29	34,84	35,43 ± 0,54
	15,32		17,92		17,99		35,55	
	14,97		16,92		17,55		35,89	
F2	15,01	14,95 ± 0,06	16,18	16,19 ± 0,01	17,35	17,31 ± 0,05	33,64	33,47 ± 0,86
	14,96		16,20		17,33		32,54	
	14,89		16,19		17,25		34,24	
F3	14,99	14,91 ± 0,12	15,89	15,81 ± 0,14	16,80	17,17 ± 0,32	30,51	30,73 ± 0,19
	14,77		15,65		17,35		30,83	
	14,97		15,88		17,36		30,84	

Lampiran 4.4 Tabel uji *in vitro* pelepasan obat

Tabel 10. Data hasil uji *in vitro* pelepasan obat F1

Waktu (jam)	Absorbansi	Concentration (µg/ml)	10 mL (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata ± SD
0,25	0,05	1,50	15,00	20,00	3,00	2,08	10,15	10,51 ± 0,31
	0,06	1,60	16,04	20,00	3,21	2,12	10,66	
	0,06	1,60	16,04	20,00	3,21	2,14	10,70	
0,5	0,06	1,68	16,81	20,00	3,36	2,09	10,91	11,41 ± 0,48
	0,06	1,78	17,85	20,00	3,57	2,14	11,42	
	0,07	1,89	18,89	20,00	3,78	2,16	11,88	
1	0,07	1,86	18,63	20,00	3,73	2,11	11,68	12,24 ± 0,50
	0,07	2,02	20,18	20,00	4,04	2,16	12,40	
	0,08	2,07	20,70	20,00	4,14	2,18	12,65	
2	0,07	1,91	19,15	20,00	3,83	2,13	11,92	12,35 ± 0,39
	0,07	2,02	20,18	20,00	4,04	2,18	12,44	
	0,08	2,07	20,70	20,00	4,14	2,20	12,69	
3	0,09	2,46	24,59	20,00	4,92	2,16	14,15	14,58 ± 0,39
	0,09	2,56	25,62	20,00	5,12	2,21	14,66	
	0,10	2,61	26,14	20,00	5,23	2,23	14,92	

Lanjutan tabel 10

Waktu (jam)	Absorbansi	Concentration ($\mu\text{g/ml}$)	10 mL ($\mu\text{g/ml}$)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata \pm SD
4	0,09	2,46	24,59	20,00	4,92	2,18	14,20	14,63 \pm 0,39
	0,09	2,56	25,62	20,00	5,12	2,23	14,72	
	0,10	2,61	26,14	20,00	5,23	2,26	14,97	
5	0,09	2,51	25,10	20,00	5,02	2,21	14,45	14,92 \pm 0,44
	0,10	2,61	26,14	20,00	5,23	2,26	14,97	
	0,10	2,69	26,92	20,00	5,38	2,28	15,33	
6	0,10	2,64	26,40	20,00	5,28	2,23	15,02	15,67 \pm 0,57
	0,10	2,82	28,21	20,00	5,64	2,29	15,86	
	0,11	2,87	28,73	20,00	5,75	2,31	16,12	
12	0,11	3,08	30,80	20,00	6,16	2,26	16,85	17,35 \pm 0,46
	0,12	3,21	32,10	20,00	6,42	2,32	17,48	
	0,12	3,26	32,62	20,00	6,52	2,34	17,74	
24	0,12	3,21	32,10	20,00	6,42	2,30	17,43	17,83 \pm 0,45
	0,12	3,26	32,62	20,00	6,52	2,35	17,75	
	0,13	3,39	33,91	20,00	6,78	2,38	18,32	

Lanjutan tabel 10

Waktu (jam)	Absorbansi	Concentration ($\mu\text{g/ml}$)	10 mL ($\mu\text{g/ml}$)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata \pm SD
36	0,19	4,97	49,72	20,00	9,94	2,35	24,58	25,05 \pm 0,50
	0,19	5,05	50,49	20,00	10,10	2,40	25,00	
	0,20	5,18	51,79	20,00	10,36	2,43	25,58	
48	0,19	5,05	50,49	20,00	10,10	2,40	24,99	25,47 \pm 0,50
	0,19	5,13	51,27	20,00	10,25	2,45	25,42	
	0,20	5,26	52,56	20,00	10,51	2,48	25,99	
60	0,19	5,15	51,53	20,00	10,31	2,45	25,51	25,85 \pm 0,35
	0,20	5,20	52,05	20,00	10,41	2,51	25,83	
	0,20	5,28	52,82	20,00	10,56	2,54	26,20	
72	0,21	5,49	54,90	20,00	10,98	2,50	26,96	27,34 \pm 0,35
	0,21	5,57	55,67	20,00	11,13	2,56	27,39	
	0,21	5,62	56,19	20,00	11,24	2,59	27,66	
84	0,22	5,77	57,75	20,00	11,55	2,56	28,22	28,56 \pm 0,35
	0,22	5,83	58,26	20,00	11,65	2,62	28,55	
	0,22	5,90	59,04	20,00	11,81	2,65	28,92	

Lanjutan tabel 10

Waktu (jam)	Absorbansi	Concentration ($\mu\text{g/ml}$)	10 mL ($\mu\text{g/ml}$)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata \pm SD
96	0,30	7,77	77,69	20,00	15,54	2,64	36,35	36,73 \pm 0,33
	0,30	7,87	78,73	20,00	15,75	2,70	36,89	
	0,30	7,87	78,73	20,00	15,75	2,73	36,95	
108	0,30	8,00	80,03	20,00	16,01	2,72	37,45	37,93 \pm 0,46
	0,31	8,11	81,06	20,00	16,21	2,78	37,98	
	0,31	8,18	81,84	20,00	16,37	2,81	38,36	
120	0,31	8,26	82,62	20,00	16,52	2,80	38,65	39,06 \pm 0,41
	0,32	8,34	83,39	20,00	16,68	2,86	39,08	
	0,32	8,42	84,17	20,00	16,83	2,90	39,46	
132	0,32	8,39	83,91	20,00	16,78	2,88	39,33	39,79 \pm 0,39
	0,32	8,52	85,21	20,00	17,04	2,95	39,98	
	0,32	8,52	85,21	20,00	17,04	2,98	40,04	
144	0,37	9,82	98,16	20,00	19,63	2,98	45,23	45,93 \pm 0,67
	0,38	9,97	99,72	20,00	19,94	3,05	45,98	
	0,39	10,10	101,01	20,00	20,20	3,08	46,57	

Lanjutan tabel 10

Waktu (jam)	Absorbansi	Concentration (µg/ml)	10 mL (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata ± SD
156	0,44	11,47	114,74	20,00	22,95	3,10	52,09	52,62 ± 0,46
	0,44	11,63	116,30	20,00	23,26	3,16	52,85	
	0,44	11,63	116,30	20,00	23,26	3,20	52,91	
168	0,46	12,12	121,22	20,00	24,24	3,22	54,92	55,45 ± 0,46
	0,47	12,28	122,77	20,00	24,55	3,29	55,68	
	0,47	12,28	122,77	20,00	24,55	3,32	55,75	

Tabel 11. Data hasil uji *in vitro* pelepasan obat F2

Waktu (jam)	Serapan	Concentration (µg/ml)	10 mL (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata ± SD
0,25	0,05	1,50	15,00	20,00	3,00	1,02	8,05	8,44 ± 0,35
	0,06	1,60	16,04	20,00	3,21	1,05	8,52	
	0,06	1,66	16,55	20,00	3,31	1,06	8,74	
0,5	0,06	1,78	17,85	20,00	3,57	1,04	9,23	9,82 ± 0,53
	0,07	1,97	19,66	20,00	3,93	1,07	10,01	
	0,07	2,02	20,18	20,00	4,04	1,08	10,23	
1	0,06	1,78	17,85	20,00	3,57	1,06	9,26	9,69 ± 0,40
	0,07	1,89	18,89	20,00	3,78	1,09	9,74	
	0,07	1,97	19,66	20,00	3,93	1,10	10,06	
2	0,07	1,86	18,63	20,00	3,73	1,08	9,61	10,00 ± 0,36
	0,07	1,97	19,66	20,00	3,93	1,11	10,09	
	0,07	2,02	20,18	20,00	4,04	1,12	10,31	
3	0,08	2,20	21,99	20,00	4,40	1,10	11,00	11,53 ± 0,51
	0,09	2,33	23,29	20,00	4,66	1,13	11,58	
	0,09	2,43	24,33	20,00	4,87	1,14	12,02	

Lanjutan tabel 11

Waktu (jam)	Serapan	Concentration (µg/ml)	10 mL (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata ± SD
4	0,08	2,28	22,77	20,00	4,55	1,12	11,36	11,75 ± 0,36
	0,09	2,38	23,81	20,00	4,76	1,16	11,84	
	0,09	2,43	24,33	20,00	4,87	1,17	12,07	
5	0,10	2,77	27,69	20,00	5,54	1,15	13,38	13,92 ± 0,47
	0,11	2,95	29,51	20,00	5,90	1,19	14,18	
	0,11	2,95	29,51	20,00	5,90	1,20	14,20	
6	0,10	2,82	28,21	20,00	5,64	1,18	13,64	14,12 ± 0,42
	0,11	2,95	29,51	20,00	5,90	1,22	14,24	
	0,11	3,00	30,03	20,00	6,01	1,23	14,46	
12	0,11	3,05	30,54	20,00	6,11	1,21	14,64	14,97 ± 0,31
	0,12	3,13	31,32	20,00	6,26	1,25	15,02	
	0,12	3,18	31,84	20,00	6,37	1,26	15,25	
24	0,12	3,29	32,88	20,00	6,58	1,24	15,64	16,08 ± 0,42
	0,13	3,39	33,91	20,00	6,78	1,28	16,13	
	0,13	3,47	34,69	20,00	6,94	1,29	16,46	

Lanjutan tabel 11

Waktu (jam)	Serapan	Concentration ($\mu\text{g/ml}$)	10 mL ($\mu\text{g/ml}$)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata \pm SD
36	0,16	4,22	42,20	20,00	8,44	1,29	19,45	19,86 \pm 0,37
	0,16	4,32	43,24	20,00	8,65	1,32	19,94	
	0,16	4,38	43,76	20,00	8,75	1,34	20,18	
48	0,19	5,10	51,01	20,00	10,20	1,34	23,08	23,49 \pm 0,37
	0,20	5,20	52,05	20,00	10,41	1,38	23,57	
	0,20	5,26	52,56	20,00	10,51	1,39	23,81	
60	0,20	5,20	52,05	20,00	10,41	1,39	23,60	23,87 \pm 0,24
	0,20	5,28	52,82	20,00	10,56	1,43	23,99	
	0,20	5,28	52,82	20,00	10,56	1,44	24,02	
72	0,21	5,49	54,90	20,00	10,98	1,44	24,85	25,01 \pm 0,22
	0,21	5,49	54,90	20,00	10,98	1,48	24,93	
	0,21	5,57	55,67	20,00	11,13	1,50	25,27	
84	0,22	5,72	57,23	20,00	11,45	1,50	25,89	26,13 \pm 0,27
	0,22	5,75	57,49	20,00	11,50	1,54	26,08	
	0,22	5,83	58,26	20,00	11,65	1,56	26,42	

Lanjutan tabel 11

Waktu (jam)	Serapan	Concentration (µg/ml)	10 mL (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata ± SD
96	0,23	5,98	59,82	20,00	11,96	1,56	27,05	27,22 ± 0,23
	0,23	5,98	59,82	20,00	11,96	1,60	27,13	
	0,23	6,06	60,60	20,00	12,12	1,62	27,47	
108	0,23	6,01	60,08	20,00	12,02	1,62	27,27	27,72 ± 0,42
	0,23	6,11	61,11	20,00	12,22	1,66	27,77	
	0,23	6,19	61,89	20,00	12,38	1,68	28,12	
120	0,26	6,73	67,33	20,00	13,47	1,69	30,31	30,58 ± 0,24
	0,26	6,81	68,11	20,00	13,62	1,73	30,71	
	0,26	6,81	68,11	20,00	13,62	1,75	30,74	
132	0,26	6,89	68,89	20,00	13,78	1,76	31,07	31,52 ± 0,43
	0,27	6,99	69,92	20,00	13,98	1,80	31,57	
	0,27	7,07	70,70	20,00	14,14	1,82	31,92	
144	0,34	8,99	89,87	20,00	17,97	1,85	39,64	39,92 ± 0,33
	0,34	9,01	90,13	20,00	18,03	1,89	39,83	
	0,35	9,12	91,17	20,00	18,23	1,91	40,28	

Lanjutan tabel 11

Waktu (jam)	Serapan	Concentration (µg/ml)	10 mL (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata ± SD
156	0,37	9,76	97,64	20,00	19,53	1,94	42,95	43,26 ± 0,32
	0,37	9,82	98,16	20,00	19,63	1,99	43,24	
	0,38	9,89	98,94	20,00	19,79	2,01	43,59	
168	0,45	11,81	118,11	20,00	23,62	2,06	51,37	51,65 ± 0,33
	0,45	11,84	118,37	20,00	23,67	2,11	51,56	
	0,46	11,94	119,40	20,00	23,88	2,13	52,02	

Tabel 12. Data hasil uji *in vitro* pelepasan obat F3

Waktu (jam)	Serapan	Concentration (µg/ml)	10 mL (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata ± SD
0,25	0,04	1,11	11,11	20,00	2,22	0,00	4,45	4,93 ± 0,43
	0,04	1,27	12,67	20,00	2,53	0,00	5,07	
	0,05	1,32	13,19	20,00	2,64	0,00	5,27	
0,5	0,05	1,40	13,96	20,00	2,79	0,01	5,61	5,96 ± 0,32
	0,05	1,50	15,00	20,00	3,00	0,02	6,03	
	0,06	1,55	15,52	20,00	3,10	0,02	6,24	
1	0,06	1,73	17,33	20,00	3,47	0,03	7,00	7,34 ± 0,32
	0,07	1,84	18,37	20,00	3,67	0,03	7,41	
	0,07	1,89	18,89	20,00	3,78	0,03	7,62	
2	0,07	1,86	18,63	20,00	3,73	0,05	7,55	7,90 ± 0,32
	0,07	1,97	19,66	20,00	3,93	0,05	7,97	
	0,07	2,02	20,18	20,00	4,04	0,05	8,18	
3	0,08	2,10	20,96	20,00	4,19	0,07	8,53	8,74 ± 0,21
	0,08	2,15	21,48	20,00	4,30	0,07	8,74	
	0,08	2,20	21,99	20,00	4,40	0,08	8,95	

Lanjutan tabel 12

Waktu (jam)	Serapan	Concentration ($\mu\text{g/ml}$)	10 mL ($\mu\text{g/ml}$)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata \pm SD
4	0,09	2,51	25,10	20,00	5,02	0,10	10,23	10,62 \pm 0,37
	0,10	2,61	26,14	20,00	5,23	0,10	10,66	
	0,10	2,69	26,92	20,00	5,38	0,10	10,97	
5	0,11	2,90	28,99	20,00	5,80	0,12	11,85	12,48 \pm 0,55
	0,12	3,13	31,32	20,00	6,26	0,13	12,79	
	0,12	3,13	31,32	20,00	6,26	0,13	12,80	
6	0,12	3,29	32,88	20,00	6,58	0,16	13,47	13,89 \pm 0,39
	0,13	3,42	34,17	20,00	6,83	0,17	14,00	
	0,13	3,47	34,69	20,00	6,94	0,17	14,21	
12	0,13	3,49	34,95	20,00	6,99	0,19	14,36	14,86 \pm 0,43
	0,14	3,68	36,76	20,00	7,35	0,20	15,11	
	0,14	3,68	36,76	20,00	7,35	0,21	15,12	
24	0,15	4,12	41,17	20,00	8,23	0,23	16,93	17,26 \pm 0,33
	0,16	4,19	41,94	20,00	8,39	0,24	17,27	
	0,16	4,27	42,72	20,00	8,54	0,25	17,59	

Lanjutan tabel 12

Waktu (jam)	Serapan	Concentration ($\mu\text{g/ml}$)	10 mL ($\mu\text{g/ml}$)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata \pm SD
36	0,16	4,27	42,72	20,00	8,54	0,28	17,64	18,01 \pm 0,33
	0,16	4,38	43,76	20,00	8,75	0,29	18,08	
	0,17	4,43	44,27	20,00	8,85	0,29	18,30	
48	0,16	4,35	43,50	20,00	8,70	0,32	18,04	18,47 \pm 0,39
	0,17	4,48	44,79	20,00	8,96	0,33	18,58	
	0,17	4,53	45,31	20,00	9,06	0,34	18,80	
60	0,19	5,08	50,75	20,00	10,15	0,37	21,04	21,41 \pm 0,32
	0,20	5,20	52,05	20,00	10,41	0,39	21,59	
	0,20	5,20	52,05	20,00	10,41	0,39	21,60	
72	0,21	5,49	54,90	20,00	10,98	0,43	22,81	23,18 \pm 0,34
	0,21	5,59	55,93	20,00	11,19	0,44	23,26	
	0,21	5,65	56,45	20,00	11,29	0,45	23,47	
84	0,21	5,67	56,71	20,00	11,34	0,48	23,65	23,95 \pm 0,26
	0,22	5,77	57,75	20,00	11,55	0,50	24,10	
	0,22	5,77	57,75	20,00	11,55	0,50	24,11	

Lanjutan tabel 12

Waktu (jam)	Serapan	Concentration (µg/ml)	10 mL (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata ± SD
96	0,22	5,77	57,75	20,00	11,55	0,54	24,18	24,34 ± 0,14
	0,22	5,83	58,26	20,00	11,65	0,56	24,42	
	0,22	5,83	58,26	20,00	11,65	0,56	24,43	
108	0,23	6,06	60,60	20,00	12,12	0,60	25,44	25,74 ± 0,29
	0,23	6,14	61,37	20,00	12,27	0,62	25,79	
	0,23	6,19	61,89	20,00	12,38	0,62	26,01	
120	0,24	6,32	63,19	20,00	12,64	0,66	26,60	27,12 ± 0,45
	0,25	6,50	65,00	20,00	13,00	0,68	27,37	
	0,25	6,50	65,00	20,00	13,00	0,69	27,38	
132	0,25	6,66	66,55	20,00	13,31	0,73	28,08	28,43 ± 0,34
	0,26	6,73	67,33	20,00	13,47	0,75	28,43	
	0,26	6,81	68,11	20,00	13,62	0,76	28,76	

Lanjutan tabel 12

Waktu (jam)	Serapan	Concentration (µg/ml)	10 mL (µg/ml)	Faktor Pengenceran	100 ml (mg)	Faktor Koreksi	%Pelepasan	Rata-rata ± SD
	0,31	8,13	81,32	20,00	16,26	0,81	34,15	
144	0,31	8,24	82,36	20,00	16,47	0,83	34,61	34,46 ± 0,27
	0,31	8,24	82,36	20,00	16,47	0,84	34,62	
	0,31	8,16	81,58	20,00	16,32	0,89	34,42	
156	0,32	8,37	83,65	20,00	16,73	0,92	35,30	35,11 ± 0,62
	0,32	8,44	84,43	20,00	16,89	0,92	35,62	
	0,44	11,63	116,30	20,00	23,26	1,01	48,54	
168	0,45	11,89	118,89	20,00	23,78	1,04	49,63	49,10 ± 0,54
	0,45	11,76	117,59	20,00	23,52	1,04	49,12	

Tabel 13. Data fluks pelepasan *in vitro* pada jam ke-168

Formula	Pelepasan	Rata-rata	SD	Pelepasan kumulatif	Rata-rata	SD	Fluks ($\mu\text{g}/\text{cm}^2.\text{jam}$)	Rata-rata \pm SD
F1	3232,47			30824,18			183,48	
	3273,92	3260,10	23,93	31452,85	31365,34	503,15	187,22	186,70 \pm 2,99
	3273,92			31819,00			189,40	
F2	3149,57			28067,70			167,07	
	3156,48	3163,39	18,28	28578,93	28528,27	437,44	170,11	169,81 \pm 2,60
	3184,11			28938,17			172,25	
F3	3101,21			27224,87			162,05	
	3170,29	3135,75	34,54	27964,08	27779,85	489,59	166,45	165,36 \pm 2,91
	3135,75			28150,60			167,56	

Lampiran 5. Data hasil analisis statistika

Lampiran 5.1 Uji viskositas

Tests of Normality							
	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Viskositas	1	.385	3	.	.750	3	.000
	2	.385	3	.	.750	3	.000
	3	.385	3	.	.750	3	.000

a. Lilliefors Significance Correction

Independent-Samples Kruskal-Wallis Test Summary

Test Statistics ^{a,b}	
	Viskositas
Kruskal-Wallis H	7.385
df	2
Asymp. Sig.	.025

a. Kruskal Wallis Test

b. Grouping Variable: Formula

Lampiran 5.2 Ukuran mikropartikel

Tests of Normality							
	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Sebelum_Mikropartikel	1	.110	100	.005	.932	100	.000
	2	.099	100	.018	.859	100	.000
	3	.082	100	.095	.970	100	.023
Sesudah_Mikropartikel	1	.106	100	.007	.962	100	.006
	2	.075	100	.180	.980	100	.138
	3	.146	100	.000	.915	100	.000

a. Lilliefors Significance Correction

2 Related Sampeles Wilcoxon Test Summary

Test Statistics ^a	
	Sesudah_Mikropartikel - Sebelum_Mikropartikel
Z	-6.804 ^b
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Kruskal-Wallis Test

Test Statistics^{a,b}	
	Sebelum_Mikrop artikel
Kruskal-Wallis H	120.424
df	2
Asymp. Sig.	.000

a. Kruskal Wallis Test

b. Grouping Variable: Formula

Lampiran 5.3 Uji difusi

Tests of Normality							
	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Diameter_24_Jam	1	.258	3	.	.960	3	.617
	2	.243	3	.	.972	3	.679
	3	.376	3	.	.773	3	.051

ANOVA					
Diameter_24_Jam					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	33.450	2	16.725	47.086	.000
Within Groups	2.131	6	.355		
Total	35.581	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Diameter_24_Jam

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	1.95333*	.48662	.016	.4602	3.4464
	3	4.70000*	.48662	.000	3.2069	6.1931
2	1	-1.95333*	.48662	.016	-3.4464	-.4602
	3	2.74667*	.48662	.003	1.2536	4.2398
3	1	-4.70000*	.48662	.000	-6.1931	-3.2069
	2	-2.74667*	.48662	.003	-4.2398	-1.2536

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

Lampiran 5.4 Uji *in vitro* pelepasan obat

Tests of Normality							
		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pelepasan_168_jam	1	.359	3	.	.811	3	.140
	2	.269	3	.	.949	3	.566
	3	.186	3	.	.998	3	.921

a. Lilliefors Significance Correction

ANOVA					
Pelepasan_168_jam					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	61.403	2	30.702	148.915	.000
Within Groups	1.237	6	.206		
Total	62.640	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Pelepasan_168_jam

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	3.80317789*	.37073672	.000	2.6656558	4.9407000
	3	6.35730570*	.37073672	.000	5.2197836	7.4948278
2	1	-3.80317789*	.37073672	.000	-4.9407000	-2.6656558
	3	2.55412781*	.37073672	.001	1.4166057	3.6916499
3	1	-6.35730570*	.37073672	.000	-7.4948278	-5.2197836
	2	-2.55412781*	.37073672	.001	-3.6916499	-1.4166057

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

Lampiran 5.5 Fluks pelepasan *in vitro*

Tests of Normality							
Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk			
	Statistic	df	Sig.	Statistic	df	Sig.	
Fluks 1	.236	3	.	.977	3	.712	
2	.225	3	.	.984	3	.757	
3	.256	3	.	.962	3	.623	

a. Lilliefors Significance Correction

ANOVA					
Fluks					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	168511.621	2	84255.810	2256.863	.000
Within Groups	223.999	6	37.333		
Total	168735.620	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Fluks

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-169.81000*	4.98886	.000	-185.1172	-154.5028
	3	-335.16333*	4.98886	.000	-350.4705	-319.8561
2	1	169.81000*	4.98886	.000	154.5028	185.1172
	3	-165.35333*	4.98886	.000	-180.6605	-150.0461
3	1	335.16333*	4.98886	.000	319.8561	350.4705
	2	165.35333*	4.98886	.000	150.0461	180.6605

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

Lampiran 6. Hasil uji kinetika pelepasan obat menggunakan DDSolver pada Microsoft Excel

DDSolver 1.0		Dissolution Data Modeling of Zero-order Model	
Time Unit	h	Analyst	melvina
Model	Zero-order	Date	2022-12-15
Equation	$F=k_0*t$	Time	14:53:55

Time	No.1	No.2	No.3	Mean	SD	RSD(%)
(h)	F(%)	F(%)	F(%)			
0.25	0.31	0.35	4.93	1.86	2.66	142.64
0.5	0.48	0.53	5.96	2.32	3.15	135.52
1	0.50	0.40	7.34	2.75	3.98	144.66
2	0.39	0.36	7.90	2.88	4.35	150.72
3	0.39	0.51	8.74	3.21	4.79	148.90
4	0.39	0.36	10.62	3.79	5.91	155.95
5	0.44	0.47	12.48	4.46	6.94	155.59
6	0.57	0.42	13.89	4.96	7.74	155.87
12	0.46	0.31	14.86	5.21	8.36	160.45
24	0.45	0.42	17.26	6.04	9.72	160.78
36	0.50	0.37	18.01	6.29	10.14	161.21

48	0.50	0.37	18.47	6.45	10.41	161.45
60	0.35	0.24	21.41	7.33	12.19	166.32
72	0.35	0.22	23.18	7.92	13.22	166.92
84	0.35	0.27	23.95	8.19	13.65	166.68
96	0.33	0.23	24.34	8.30	13.89	167.42
108	0.46	0.42	25.74	8.88	14.61	164.59
120	0.41	0.24	27.12	9.25	15.47	167.16

Time	No.1	No.2	No.3			
(h)	F(%)_Pre	F(%)_Pre	F(%)_Pre	Mean	SD	RSD(%)
0.25	0.00	0.00	0.07	0.02	0.04	165.55
0.5	0.00	0.00	0.14	0.05	0.08	165.55
1	0.00	0.00	0.28	0.10	0.16	165.55
2	0.01	0.01	0.57	0.19	0.32	165.55
3	0.01	0.01	0.85	0.29	0.48	165.55
4	0.02	0.01	1.13	0.39	0.64	165.55
5	0.02	0.02	1.41	0.49	0.80	165.55
6	0.03	0.02	1.70	0.58	0.96	165.55
12	0.06	0.04	3.39	1.17	1.93	165.55
24	0.12	0.09	6.79	2.33	3.86	165.55

36	0.18	0.13	10.18	3.50	5.79	165.55
48	0.24	0.18	13.58	4.66	7.72	165.55
60	0.30	0.22	16.97	5.83	9.65	165.55
72	0.36	0.26	20.36	6.99	11.58	165.55
84	0.41	0.31	23.76	8.16	13.51	165.55
96	0.47	0.35	27.15	9.33	15.44	165.55
108	0.53	0.39	30.55	10.49	17.37	165.55
120	0.59	0.44	33.94	11.66	19.30	165.55

Best-fit Values						
Parameter	No.1	No.2	No.3	Mean	SD	RSD(%)
k0	0.005	0.004	0.283	0.097	0.161	165.548

Secondary Parameter						
Parameter	No.1	No.2	No.3	Mean	SD	RSD(%)
T25	5065.257	6839.056	88.390	3997.568	3499.692	87.546
T50	10130.514	13678.113	176.779	7995.135	6999.385	87.546
T75	15195.771	20517.169	265.169	11992.703	10499.077	87.546
T80	16208.823	21884.980	282.847	12792.217	11199.015	87.546
T90	18234.926	24620.603	318.202	14391.244	12598.892	87.546

Goodness of Fit			
Parameter	No.1	No.2	No.3
N_observed	18	18	18
DF	17	17	17
R_obs-pre	-0.2938	-0.6324	0.9371
Rsqr	-20.9809	-10.3978	-0.1200
Rsqr_adj	-20.9809	-10.3978	-0.1200
MSE	0.1163	0.1029	59.7835
MSE_root	0.3411	0.3208	7.7320
Weighting	1	1	1
SS	1.9779	1.7494	1016.3198
WSS	1.9779	1.7494	1016.3198
AIC	14.2768	12.0669	126.6310
MSC	-3.2013	-2.5445	-0.2244

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

Time Unit	h	Analyst	melvina
Model	First-order	Date	2022-12-15
Equation	$F=100*[1-Exp(-k1*t)]$	Time	14:53:19

Time (h)	No.1 F(%)	No.2 F(%)	No.3 F(%)	Mean	SD	RSD(%)
0.25	0.31	0.35	4.93	1.86	2.66	142.64
0.5	0.48	0.53	5.96	2.32	3.15	135.52
1	0.50	0.40	7.34	2.75	3.98	144.66
2	0.39	0.36	7.90	2.88	4.35	150.72
3	0.39	0.51	8.74	3.21	4.79	148.90
4	0.39	0.36	10.62	3.79	5.91	155.95
5	0.44	0.47	12.48	4.46	6.94	155.59
6	0.57	0.42	13.89	4.96	7.74	155.87
12	0.46	0.31	14.86	5.21	8.36	160.45
24	0.45	0.42	17.26	6.04	9.72	160.78
36	0.50	0.37	18.01	6.29	10.14	161.21

48	0.50	0.37	18.47	6.45	10.41	161.45
60	0.35	0.24	21.41	7.33	12.19	166.32
72	0.35	0.22	23.18	7.92	13.22	166.92
84	0.35	0.27	23.95	8.19	13.65	166.68
96	0.33	0.23	24.34	8.30	13.89	167.42
108	0.46	0.42	25.74	8.88	14.61	164.59
120	0.41	0.24	27.12	9.25	15.47	167.16

Time	No.1	No.2	No.3	Mean	SD	RSD(%)
(h)	F(%)_Pre	F(%)_Pre	F(%)_Pre			
0.25	0.00	0.00	0.08	0.03	0.05	166.74
0.5	0.00	0.00	0.17	0.06	0.10	166.74
1	0.00	0.00	0.34	0.12	0.19	166.74
2	0.01	0.01	0.67	0.23	0.38	166.73
3	0.01	0.01	1.01	0.34	0.57	166.72
4	0.02	0.01	1.34	0.46	0.76	166.70
5	0.02	0.02	1.67	0.57	0.95	166.69
6	0.03	0.02	2.01	0.69	1.14	166.68
12	0.06	0.04	3.97	1.36	2.26	166.62
24	0.12	0.09	7.78	2.66	4.43	166.49

36	0.18	0.13	11.44	3.92	6.52	166.36
48	0.24	0.18	14.96	5.12	8.52	166.23
60	0.30	0.22	18.34	6.28	10.44	166.10
72	0.36	0.26	21.58	7.40	12.28	165.96
84	0.41	0.31	24.69	8.47	14.05	165.83
96	0.47	0.35	27.68	9.50	15.74	165.69
108	0.53	0.39	30.55	10.49	17.37	165.55
120	0.59	0.44	33.31	11.45	18.93	165.41

Best-fit Values						
Parameter	No.1	No.2	No.3	Mean	SD	RSD(%)
k1	0.000	0.000	0.003	0.001	0.002	166.747

Secondary Parameter						
Parameter	No.1	No.2	No.3	Mean	SD	RSD(%)
T25	5816.734	7857.284	85.214	4586.411	4029.459	87.856
T50	14014.961	18931.504	205.317	11050.594	9708.662	87.856
T75	28029.923	37863.008	410.635	22101.188	19417.324	87.856
T80	32541.732	43957.591	476.732	25658.685	22542.815	87.856
T90	46556.694	62889.095	682.049	36709.279	32251.478	87.856

Goodness of Fit			
Parameter	No.1	No.2	No.3
N_observed	18	18	18
DF	17	17	17
R_obs-pre	-0.2938	-0.6326	0.9472
Rsqr	-20.9705	-10.3951	-0.0045
Rsqr_adj	-20.9705	-10.3951	-0.0045
MSE	0.1163	0.1029	53.6168
MSE_root	0.3410	0.3208	7.3223
Weighting	1	1	1
SS	1.9770	1.7490	911.4850
WSS	1.9770	1.7490	911.4850
AIC	14.2683	12.0626	124.6714
MSC	-3.2008	-2.5443	-0.1156

DDSolver 1.0

Dissolution Data Modeling of Higuchi Model

Time Unit	h	Analyst	melvina
Model	Higuchi	Date	2022-12-15
Equation	$F=kH*t^{0.5}$	Time	14:52:18

Time (h)	No.1 F(%)	No.2 F(%)	No.3 F(%)	Mean	SD	RSD(%)
0.25	0.31	0.35	4.93	1.86	2.66	142.64
0.5	0.48	0.53	5.96	2.32	3.15	135.52
1	0.50	0.40	7.34	2.75	3.98	144.66
2	0.39	0.36	7.90	2.88	4.35	150.72
3	0.39	0.51	8.74	3.21	4.79	148.90
4	0.39	0.36	10.62	3.79	5.91	155.95
5	0.44	0.47	12.48	4.46	6.94	155.59
6	0.57	0.42	13.89	4.96	7.74	155.87
12	0.46	0.31	14.86	5.21	8.36	160.45
24	0.45	0.42	17.26	6.04	9.72	160.78
36	0.50	0.37	18.01	6.29	10.14	161.21
48	0.50	0.37	18.47	6.45	10.41	161.45

60	0.35	0.24	21.41	7.33	12.19	166.32
72	0.35	0.22	23.18	7.92	13.22	166.92
84	0.35	0.27	23.95	8.19	13.65	166.68
96	0.33	0.23	24.34	8.30	13.89	167.42
108	0.46	0.42	25.74	8.88	14.61	164.59
120	0.41	0.24	27.12	9.25	15.47	167.16

Time	No.1	No.2	No.3			
(h)	F(%)_Pre	F(%)_Pre	F(%)_Pre	Mean	SD	RSD(%)
0.25	0.03	0.02	1.38	0.48	0.78	164.46
0.5	0.04	0.03	1.95	0.67	1.11	164.46
1	0.05	0.04	2.76	0.95	1.57	164.46
2	0.08	0.06	3.90	1.35	2.21	164.46
3	0.09	0.07	4.78	1.65	2.71	164.46
4	0.11	0.08	5.52	1.90	3.13	164.46
5	0.12	0.09	6.17	2.13	3.50	164.46
6	0.13	0.10	6.76	2.33	3.83	164.46
12	0.19	0.14	9.56	3.30	5.42	164.46
24	0.27	0.20	13.52	4.66	7.67	164.46
36	0.33	0.25	16.55	5.71	9.39	164.46

48	0.38	0.29	19.11	6.59	10.84	164.46
60	0.42	0.32	21.37	7.37	12.12	164.46
72	0.46	0.35	23.41	8.07	13.28	164.46
84	0.50	0.38	25.28	8.72	14.34	164.46
96	0.53	0.41	27.03	9.32	15.33	164.46
108	0.56	0.43	28.67	9.89	16.26	164.46
120	0.59	0.46	30.22	10.42	17.14	164.46

Best-fit Values						
Parameter	No.1	No.2	No.3	Mean	SD	RSD(%)
kH	0.054	0.042	2.759	0.952	1.565	164.464

Secondary Parameter						
Parameter	No.1	No.2	No.3	Mean	SD	RSD(%)
T25	211870.898	358615.226	82.122	190189.415	180247.224	94.772
T50	847483.592	1434460.904	328.488	760757.661	720988.895	94.772
T75	1906838.081	3227537.035	739.097	1711704.738	1622225.015	94.772
T80	2169557.995	3672219.915	840.928	1947539.613	1845731.572	94.772
T90	2745846.837	4647653.330	1064.300	2464854.822	2336004.021	94.772

Goodness of Fit			
Parameter	No.1	No.2	No.3
N_observed	18	18	18
DF	17	17	17
R_obs-pre	-0.2414	-0.6568	0.9823
Rsqr	-13.6645	-7.4911	0.7023
Rsqr_adj	-13.6645	-7.4911	0.7023
MSE	0.0776	0.0767	15.8914
MSE_root	0.2786	0.2769	3.9864
Weighting	1	1	1
SS	1.3196	1.3033	270.1532
WSS	1.3196	1.3033	270.1532
AIC	6.9914	6.7678	102.7818
MSC	-2.7965	-2.2501	1.1005

DDSolver 1.0**Dissolution Data Modeling of Hixson-Crowell Model**

Time Unit	h	Analyst	melvina
Model	Hixson-Crowell	Date	2022-12-15
Equation	$F=100*[1-(1-kHC*t)^3]$	Time	14:51:41

Time	No.1	No.2	No.3	Mean	SD	RSD(%)
(h)	F(%)	F(%)	F(%)			
0.25	0.31	0.35	4.93	1.86	2.66	142.64
0.5	0.48	0.53	5.96	2.32	3.15	135.52
1	0.50	0.40	7.34	2.75	3.98	144.66
2	0.39	0.36	7.90	2.88	4.35	150.72
3	0.39	0.51	8.74	3.21	4.79	148.90
4	0.39	0.36	10.62	3.79	5.91	155.95
5	0.44	0.47	12.48	4.46	6.94	155.59
6	0.57	0.42	13.89	4.96	7.74	155.87
12	0.46	0.31	14.86	5.21	8.36	160.45
24	0.45	0.42	17.26	6.04	9.72	160.78
36	0.50	0.37	18.01	6.29	10.14	161.21
48	0.50	0.37	18.47	6.45	10.41	161.45

60	0.35	0.24	21.41	7.33	12.19	166.32
72	0.35	0.22	23.18	7.92	13.22	166.92
84	0.35	0.27	23.95	8.19	13.65	166.68
96	0.33	0.23	24.34	8.30	13.89	167.42
108	0.46	0.42	25.74	8.88	14.61	164.59
120	0.41	0.24	27.12	9.25	15.47	167.16

Time	No.1	No.2	No.3	Mean	SD	RSD(%)
(h)	F(%)_Pre	F(%)_Pre	F(%)_Pre			
0.25	0.00	0.00	0.08	0.03	0.05	166.36
0.5	0.00	0.00	0.16	0.05	0.09	166.36
1	0.00	0.00	0.32	0.11	0.18	166.36
2	0.01	0.01	0.63	0.22	0.36	166.35
3	0.01	0.01	0.95	0.33	0.54	166.34
4	0.02	0.01	1.27	0.43	0.72	166.34
5	0.02	0.02	1.58	0.54	0.90	166.33
6	0.03	0.02	1.90	0.65	1.08	166.32
12	0.06	0.04	3.77	1.29	2.15	166.28
24	0.12	0.09	7.44	2.55	4.24	166.20

36	0.18	0.13	11.02	3.78	6.27	166.11
48	0.24	0.18	14.50	4.97	8.26	166.02
60	0.30	0.22	17.90	6.14	10.18	165.93
72	0.36	0.26	21.20	7.27	12.06	165.84
84	0.41	0.31	24.41	8.38	13.89	165.75
96	0.47	0.35	27.53	9.45	15.66	165.65
108	0.53	0.39	30.57	10.50	17.38	165.56
120	0.59	0.44	33.52	11.52	19.06	165.46

Best-fit Values						
Parameter	No.1	No.2	No.3	Mean	SD	RSD(%)
kHC	0.000	0.000	0.001	0.000	0.001	166.365

Secondary Parameter						
Parameter	No.1	No.2	No.3	Mean	SD	RSD(%)
T25	5550.357	7496.317	86.239	4377.638	3841.714	87.758
T50	12522.304	16912.634	194.566	9876.501	8667.390	87.758
T75	22461.263	30336.201	348.994	17715.486	15546.702	87.758
T80	25202.275	34038.215	391.582	19877.357	17443.911	87.758
T90	32525.363	43928.783	505.365	25653.171	22512.631	87.758

Goodness of Fit			
Parameter	No.1	No.2	No.3
N_observed	18	18	18
DF	17	17	17
R_obs-pre	-0.2938	-0.6325	0.9440
Rsqr	-20.9740	-10.3960	-0.0417
Rsqr_adj	-20.9740	-10.3960	-0.0417
MSE	0.1163	0.1029	55.6031
MSE_root	0.3410	0.3208	7.4567
Weighting	1	1	1
SS	1.9773	1.7491	945.2529
WSS	1.9773	1.7491	945.2529
AIC	14.2712	12.0640	125.3261
MSC	-3.2010	-2.5444	-0.1520

DDSolver 1.0**Dissolution Data Modeling of Korsmeyer-Peppas Model**

Time Unit	h	Analyst	melvina
Model	Korsmeyer-Peppas	Date	2022-12-15
Equation	$F=kKP*t^n$	Time	14:49:12

Time (h)	No.1 F(%)	No.2 F(%)	No.3 F(%)	Mean	SD	RSD(%)
0.25	0.31	0.35	4.93	1.86	2.66	142.64
0.5	0.48	0.53	5.96	2.32	3.15	135.52
1	0.50	0.40	7.34	2.75	3.98	144.66
2	0.39	0.36	7.90	2.88	4.35	150.72
3	0.39	0.51	8.74	3.21	4.79	148.90
4	0.39	0.36	10.62	3.79	5.91	155.95
5	0.44	0.47	12.48	4.46	6.94	155.59
6	0.57	0.42	13.89	4.96	7.74	155.87
12	0.46	0.31	14.86	5.21	8.36	160.45
24	0.45	0.42	17.26	6.04	9.72	160.78
36	0.50	0.37	18.01	6.29	10.14	161.21

48	0.50	0.37	18.47	6.45	10.41	161.45
60	0.35	0.24	21.41	7.33	12.19	166.32
72	0.35	0.22	23.18	7.92	13.22	166.92
84	0.35	0.27	23.95	8.19	13.65	166.68
96	0.33	0.23	24.34	8.30	13.89	167.42
108	0.46	0.42	25.74	8.88	14.61	164.59
120	0.41	0.24	27.12	9.25	15.47	167.16

Time	No.1	No.2	No.3			
(h)	F(%)_Pre	F(%)_Pre	F(%)_Pre	Mean	SD	RSD(%)
0.25	0.44	0.47	5.09	2.00	2.67	133.73
0.5	0.44	0.45	6.11	2.33	3.27	140.33
1	0.43	0.43	7.35	2.74	3.99	145.96
2	0.43	0.41	8.83	3.22	4.86	150.70
3	0.43	0.39	9.83	3.55	5.44	153.12
4	0.43	0.39	10.61	3.81	5.89	154.68
5	0.43	0.38	11.26	4.02	6.27	155.82
6	0.43	0.38	11.81	4.21	6.59	156.69
12	0.42	0.36	14.20	4.99	7.97	159.66
24	0.42	0.34	17.06	5.94	9.63	162.12

36	0.42	0.33	19.00	6.58	10.75	163.35
48	0.42	0.32	20.51	7.08	11.63	164.14
60	0.42	0.32	21.76	7.50	12.35	164.71
72	0.42	0.31	22.84	7.86	12.97	165.15
84	0.42	0.31	23.79	8.17	13.53	165.50
96	0.42	0.31	24.65	8.46	14.02	165.80
108	0.42	0.30	25.43	8.72	14.47	166.05
120	0.42	0.30	26.15	8.96	14.89	166.27

Initial Value and Iteration			
Parameter	No.1	No.2	No.3
kKP	0.426	0.431	7.243
n	-0.007	-0.086	0.269
n_Iterations	20	23	30
Objec_Func	0.089	0.101	14.916

Best-fit Values						
Parameter	No.1	No.2	No.3	Mean	SD	RSD(%)
kKP	0.433	0.428	7.345	2.735	3.992	145.956
n	-0.008	-0.073	0.265	0.061	0.180	292.815

Secondary Parameter						
Parameter	No.1	No.2	No.3	Mean	SD	RSD(%)
T25	0.000	0.000	101.288	33.763	58.478	173.205
T50	0.000	0.000	1382.098	460.699	797.955	173.205
T75	0.000	0.000	6374.717	2124.906	3680.445	173.205
T80	0.000	0.000	8130.897	2710.299	4694.375	173.205
T90	0.000	0.000	12676.527	4225.509	7318.796	173.205

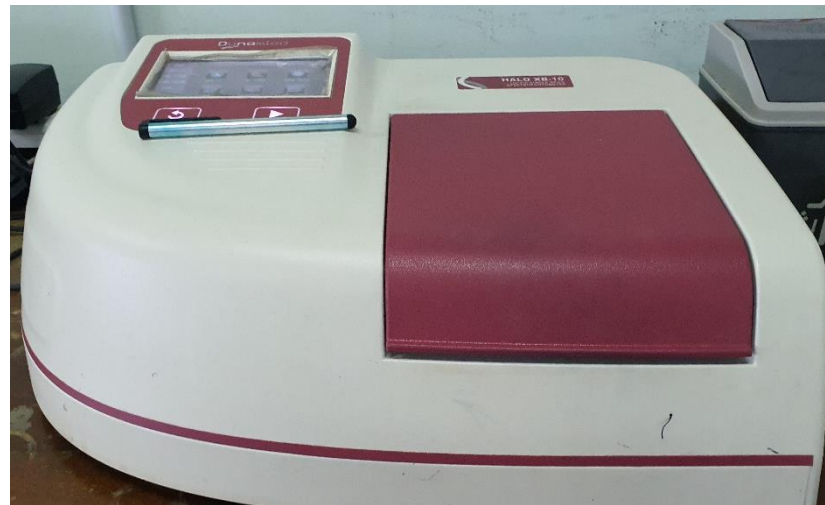
Goodness of Fit			
Parameter	No.1	No.2	No.3
N_observed	18	18	18
DF	16	16	16
R_obs-pre	0.0977	0.5861	0.9917
Rsqr	0.0095	0.3430	0.9836
Rsqr_adj	-0.0524	0.3020	0.9825
MSE	0.0056	0.0063	0.9322
MSE_root	0.0746	0.0794	0.9655
Weighting	1	1	1
SS	0.0891	0.1008	14.9156
WSS	0.0891	0.1008	14.9156

AIC	-39.5188	-37.2969	52.6434
MSC	-0.2126	0.1979	3.8860

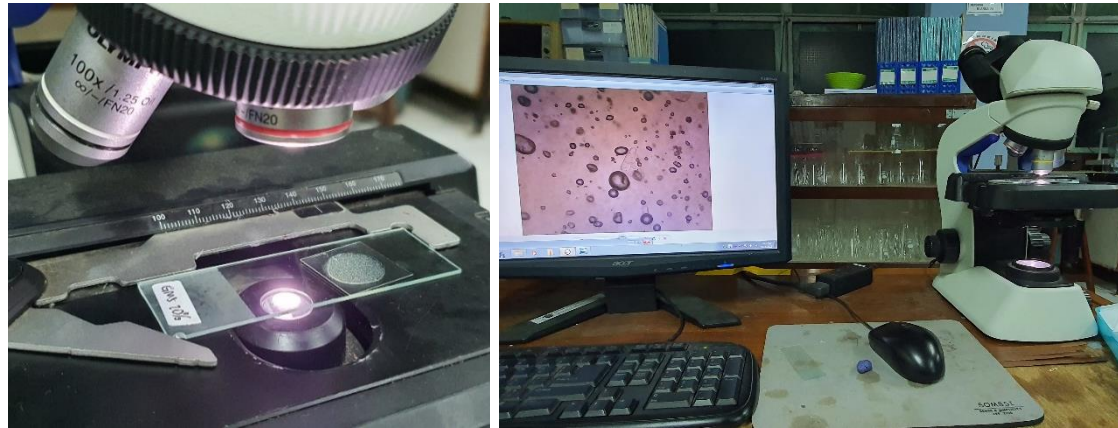
Lampiran 7. Dokumentasi Penelitian



Gambar 15. Formulasi emulsi ISM MTZ



Gambar 16. Analisis menggunakan spektrofotometer UV-Vis



Gambar 17. Studi ukuran mikropartikel ISM



Gambar 18. Uji difusi ISM



Gambar 19. Uji viskositas emulsi ISM



Gambar 20. Uji pelepasan *in vitro* emulsi ISM