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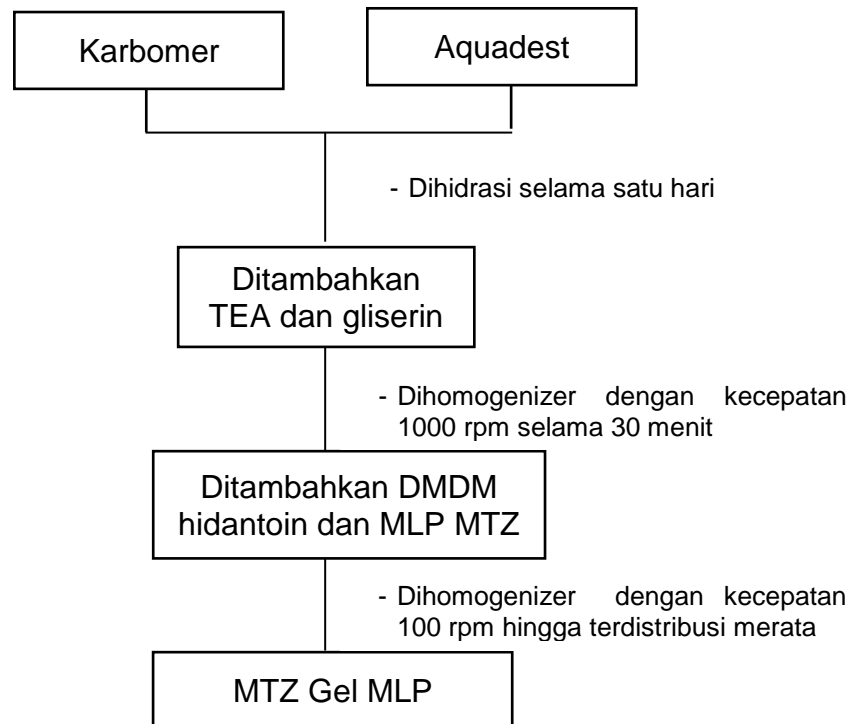
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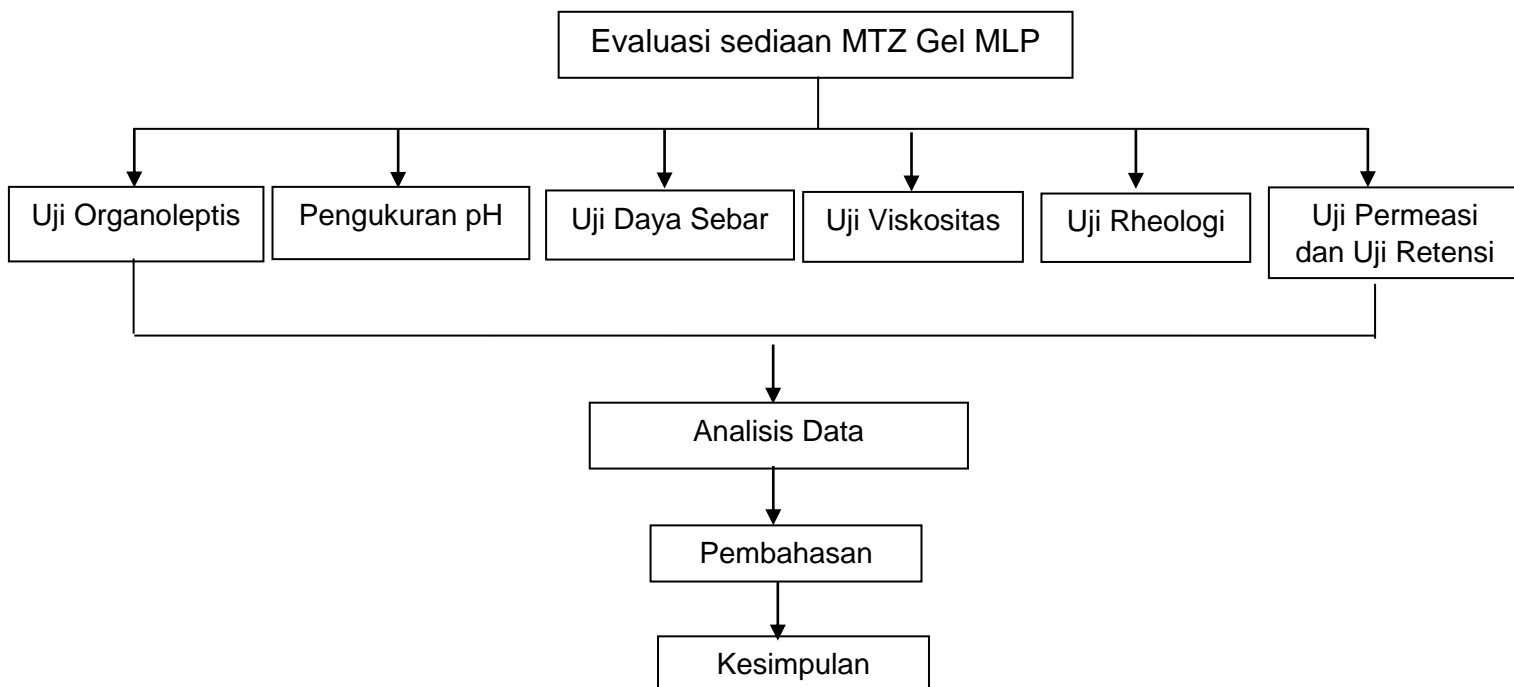
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LAMPIRAN

Lampiran 1.1 Pembuatan MTZ Gel MLP

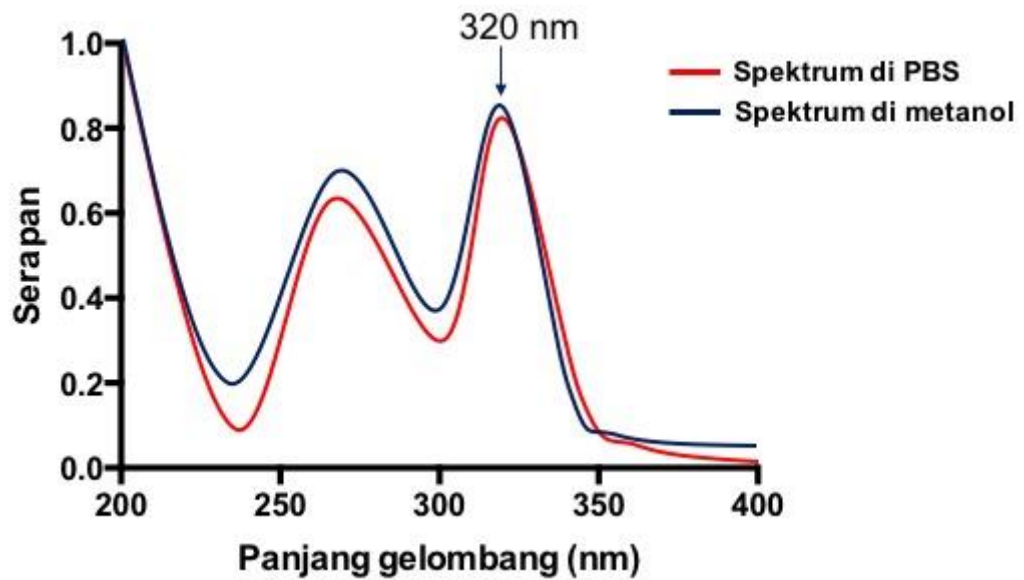


Lampiran 1.2 Evaluasi Sediaan MTZ Gel MLP



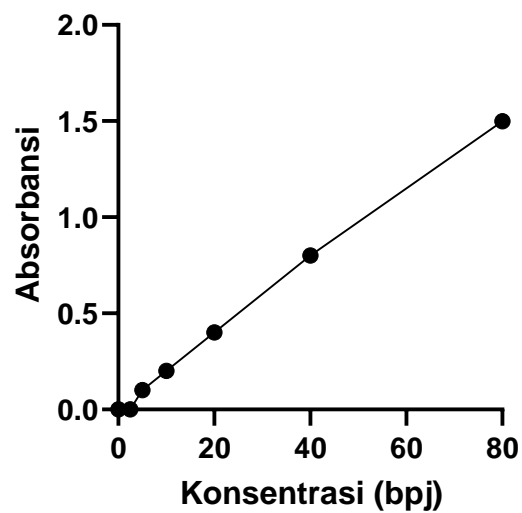
Lampiran 2. Panjang Gelombang Maksimum dan Kurva Baku

Lampiran 2.1. Panjang Gelombang Maksimum

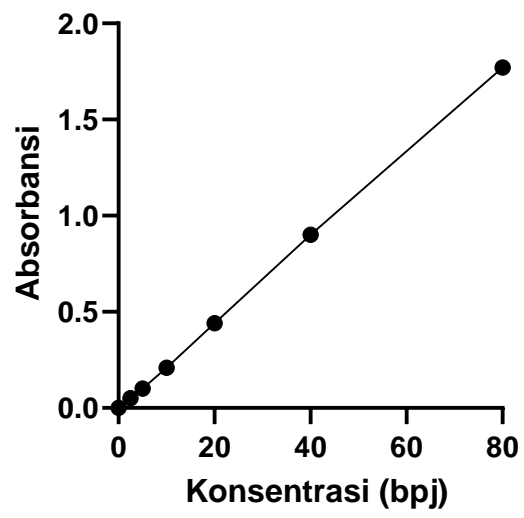


Gambar 17. Panjang Gelombang Metronidazol

Lampiran 2.2. Kurva Baku



Gambar 18. Persamaan Kurva Baku (PBS)



Gambar 19. Persamaan Kurva Baku (Metanol)

Lampiran 3. Gambar Penelitian



Gambar 20. a) Viskositas gel b) Pengujian pH (c) Pengujian daya sebar



Gambar 20. Aparatus difusi sel franz

Lampiran 4. Perhitungan

a. Uji Permeasi Gel MLP MTZ

Pada F2 Replikasi 1 jam 2, diperoleh serapan = 0,14

Persamaan: $y = 0.0189x - 0.0058$

Dimana: $y = \text{serapan}$; $x = \text{konsentrasi}$

Sehingga, untuk mendapatkan konsentrasi:

$$0,14 = 0.0189x - 0.0058$$

$$x = 7,71428571$$

$$x = 7,71 \mu\text{g/mL}$$

Konsentrasi dalam 1,5 mL = 11,48 μg

Konsentrasi dalam 28 mL = 0,21 mg

$$\begin{aligned} \text{Faktor koreksi} &= \frac{\text{konsentrasi jam sebelumnya}}{1000} + \text{Faktor koreksi jam sebelumnya} \\ &= \frac{5,71}{1000} + 0 \\ &= 0,00571 \end{aligned}$$

Jumlah terpermeasi = konsentrasi dalam 28 mL + Faktor koreksi

$$= 0,21 + 0,00571$$

$$= 0,21 \text{ mg}$$

Kecepatan permeasi sediaan (fluks, J , $\mu\text{g/cm}^2/\text{jam}^{-1}$) dihitung dengan rumus :

$$J = \frac{M}{S \times t}$$

Dimana :

J = Fluks ($\mu\text{g/cm}^2/\text{jam}^{-1}$)

S = Luas area difusi (cm^2)

M = Jumlah zat yang terpermeasi (μg)

T = Waktu (Jam)

Maka :

$$J = \frac{0,21 \text{ mg}}{4,9 \text{ cm}^2 \times 2 \text{ jam}} \times 1000 = 21,42 \mu\text{g/cm}^2/\text{jam}^{-1}$$

Pada F2 Replikasi 1 jam 3, diperoleh serapan = 0,18

Persamaan: $y = 0.0189x - 0.0058$

Dimana: $y = \text{serapan}; x = \text{konsentrasi}$

Sehingga, untuk mendapatkan konsentrasi:

$$0,18 = 0.0189x - 0.0058$$

$$x = 9,8306878$$

$$x = 9,83 \mu\text{g/mL}$$

Konsentrasi dalam 1,5 mL = 14,7 μg

Konsentrasi dalam 28 mL = 0,27 mg

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

$$= \frac{7,65}{1000} + 0$$

$$= 0,00765$$

Jumlah terpermeasi = konsentrasi dalam 28 mL + Faktor koreksi

$$= 0,27 + 0,00765$$

$$= 0,27 \text{ mg}$$

Kecepatan permeasi sediaan (fluks, J , $\mu\text{g/cm}^2/\text{jam}^{-1}$) :

$$J = \frac{0,27 \text{ mg}}{4,9 \text{ cm}^2 \times 3 \text{ jam}} \times 1000 = 18,36 \mu\text{g/cm}^2/\text{jam}^{-1}$$

b. Uji Retensi Gel MLP MTZ

Pada F3 Replikasi 1, diperoleh serapan 1,87

Persamaan: $y = 0,0223x - 0,0069$

Dimana; y = serapan : x = konsentrasi

Sehingga, untuk mendapatkan konsentrasi:

$$1,87 = 0,0223x - 0,0069$$

$$x = 84,1659193$$

$$x = 84,16 \mu\text{g/mL}$$

$$\text{Jumlah Metronidazol yang terdeposisi} = \frac{84,16}{1000} \times 30 \text{ mL} = 2,52 \text{ mg}$$

Lampiran 5. Tabel hasil Evaluasi

Lampiran 5.1. Tabel Kurva Baku

Lampiran 5.1.1 Kurva Baku PBS

Konsentrasi	Serapan 1	Serapan 2	Serapan 3	Rata-rata	SD
0	0.000	0.000	0.000	0.00	0.00
2.5	0.046	0.038	0.044	0.04	0.00
5	0.089	0.081	0.086	0.09	0.00
10	0.184	0.168	0.176	0.18	0.01
20	0.380	0.369	0.359	0.37	0.01
40	0.756	0.761	0.762	0.76	0.00
80	1.496	1.506	1.509	1.50	0.01

Lampiran 5.1.2 Kurva Baku Metanol

Konsentrasi	Serapan 1	Serapan 2	Serapan 3	Rata-rata	SD
0	0.000	0.000	0.000	0.00	0.00
2.5	0.054	0.045	0.052	0.05	0.01
5	0.105	0.095	0.101	0.10	0.00
10	0.218	0.198	0.208	0.21	0.01
20	0.449	0.435	0.424	0.44	0.01

40	0.892	0.898	0.899	0.90	0.00
80	1.766	1.777	1.781	1.77	0.01

Lampiran 5.2. Tabel Uji pH

REPLIKASI	Formula			
	F1	F2	F3	F4
1	6.73	6.84	6.89	6.95
2	6.75	6.87	6.87	6.97
3	6.72	6.83	6.91	6.93
rata-rata	6.74	6.85	6.89	6.95
SD	0.01	0.02	0.02	0.02

Lampiran 5.3. Tabel Uji Daya Sebar

Beban	Formula			
	F1	F2	F3	F4
125	2.98	2.75	2.59	2.39
	3.01	2.79	2.63	2.44
	2.97	2.77	2.56	2.40
225	3.62	3.43	3.29	2.96

	3.69	3.39	3.12	2.84
	3.68	3.37	3.27	2.93
325	4.14	3.87	3.62	3.31
	4.10	3.92	3.59	3.29
	4.24	3.89	3.64	3.37
425	4.66	4.14	4.01	3.77
	4.62	4.23	3.94	3.82
	4.67	4.21	3.99	3.80
525	5.07	4.65	4.36	4.13
	5.02	4.62	4.38	4.10
	5.03	4.66	4.35	4.15
rata-rata	4.10	3.78	3.55	3.31
SD	0.75	0.67	0.63	0.63

Lampiran 5.4. Tabel Uji Viskositas

REPLIKASI	Formula			
	F1	F2	F3	F4
1	25900	31200	35500	47700
2	23800	32500	37900	43700
3	25000	31900	38300	48900
rata-rata	24900	31866.67	37233.33	46766.67
SD	1053.57	650.64	1514.38	2722.74

Lampiran 5.5. Tabel Uji Reologi F1

Kecepatan (rpm)	Rate of Shear s^{-1}	Shearing Stress mPa				
		R1	R2	R3	Rata-Rata	SD
0	0	0.0	0.0	0.0	0.0	0.0
5	8.515	87.4	101.3	90.9	93.2	7.3
10	17.03	211.6	244.4	209.3	221.8	19.6
20	34.06	299.3	315.3	289.9	301.5	12.8
50	85.15	2203.0	2026.6	2128.8	2119.4	88.6
100	170.3	5662.5	6269.8	5471.1	5801.1	417.0

Lampiran 5.6. Tabel Uji Reologi F2

Kecepatan (rpm)	Rate of Shear s^{-1}	Shearing Stress mPa				
		R1	R2	R3	Rata-Rata	SD
0	0	0.0	0.0	0.0	0.0	0.0
5	8.515	121.6	159.9	156.7	146.0	21.3

10	17.03	223.3	294.9	281.3	266.5	38.0
20	34.06	303.9	399.7	400.9	368.1	55.6
50	85.15	2656.7	2766.4	2035.1	2486.0	394.4
100	170.3	6573.6	6643.1	5960.5	6392.4	375.6

Lampiran 5.7. Tabel Uji Reologi F3

Kecepatan (rpm)	Rate of Shear s^{-1}	Shearing Stress mPa				
		R1	R2	R3	Rata-Rata	SD
0	0	0.0	0.0	0.0	0.0	0.0
5	8.515	163.3	148.7	161.4	157.8	7.9
10	17.03	288.4	264.3	291.2	281.3	14.8
20	34.06	443.0	454.3	464.8	454.0	10.9
50	85.15	3022.8	3227.2	3261.2	3170.4	128.9
100	170.3	6777.9	6709.8	6777.9	6755.2	39.3

Lampiran 5.8. Tabel Uji Reologi F4

Kecepatan (rpm)	Rate of Shear s^{-1}	Shearing Stress mPa				
		R1	R2	R3	Rata-Rata	SD
0	0	0.0	0.0	0.0	0.0	0.0
5	8.515	1873.4	1022.8	2223.1	1706.4	617.3
10	17.03	2294.3	2467.6	2150.2	2304.1	158.9
20	34.06	3780.7	3678.5	3644.4	3701.2	70.9
50	85.15	4061.7	3721.1	4163.8	3982.2	231.8
100	170.3	4244.9	4398.8	4373.3	4339.0	82.5

Lampiran 5.9. Tabel Uji Permeasi F1

Jam	Replikasi	Serapan	Konsentrasi ($\mu\text{g/ml}$)	1.5 ml (μg)	28 ml (mg)	Faktor koreksi	Jumlah terpemeasi	rata-rata	SD
0.25	1	0.00	0.00	0.00	0.00	0.00	0.00		
	2	0.00	0.00	0.00	0.00	0.00	0.00		
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.5	1	0.06	3.34	5.02	0.09	0.00	0.06		
	2	0.05	3.14	4.70	0.09	0.00	0.05		
	3	0.06	3.45	5.17	0.10	0.00	0.06	0.06	0.00
0.75	1	0.10	5.86	8.79	0.16	0.01	0.10		
	2	0.12	6.70	10.05	0.19	0.00	0.12		
	3	0.12	6.49	9.73	0.18	0.01	0.12	0.11	0.01
1	1	0.14	7.85	11.77	0.22	0.0	0.14		
	2	0.18	9.63	14.45	0.27	0.01	0.18		
	3	0.15	8.48	12.72	0.24	0.01	0.15	0.16	0.02
2	1	0.21	11.41	17.12	0.32	0.03	0.21		
	2	0.22	11.75	17.62	0.33	0.03	0.22		
	3	0.22	12.20	18.30	0.34	0.03	0.22	0.22	0.01
3	1	0.25	13.54	20.31	0.38	0.04	0.25		
	2	0.26	13.88	20.82	0.39	0.05	0.26		
	3	0.25	13.66	20.48	0.38	0.05	0.25	0.25	0.00
4	1	0.29	15.90	23.85	0.45	0.06	0.29		
	2	0.30	16.12	24.18	0.45	0.07	0.30		
	3	0.29	15.56	23.34	0.44	0.07	0.29	0.29	0.01

0.5	1	0.00	0.00	0.00	0.00	0.00	0.00		
	2	0.00	0.00	0.00	0.00	0.00	0.00		
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.75	1	0.06	3.26	4.90	0.09	0.00	0.09		
	2	0.05	3.06	4.59	0.09	0.00	0.09		
	3	0.06	3.37	5.05	0.09	0.00	0.09	0.09	0.00
1	1	0.10	5.71	8.57	0.16	0.00	0.16		
	2	0.12	6.53	9.79	0.18	0.00	0.19		
	3	0.11	6.32	9.49	0.18	0.01	0.18	0.18	0.01
2	1	0.14	7.65	11.48	0.21	0.01	0.23		
	2	0.17	9.38	14.08	0.26	0.01	0.28		
	3	0.15	8.26	12.39	0.23	0.01	0.25	0.25	0.03
3	1	0.18	9.61	14.42	0.27	0.02	0.29		
	2	0.18	9.89	14.84	0.28	0.03	0.31		
	3	0.19	10.27	15.40	0.29	0.03	0.31	0.30	0.01
4	1	0.21	11.40	17.09	0.32	0.04	0.36		
	2	0.21	11.68	17.52	0.33	0.04	0.37		
	3	0.21	11.49	17.24	0.32	0.04	0.36	0.36	0.01
5	1	0.25	13.37	20.05	0.37	0.06	0.43		
	2	0.25	13.56	20.34	0.38	0.06	0.44		
	3	0.24	13.09	19.63	0.37	0.06	0.43	0.43	0.01
6	1	0.28	15.25	22.87	0.43	0.08	0.50		
	2	0.29	15.44	23.16	0.43	0.08	0.51		
	3	0.28	15.06	22.59	0.42	0.08	0.50	0.51	0.01

	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
1	1	0.04	2.48	3.71	0.07	0.00	0.07			
	2	0.04	2.16	3.24	0.06	0.00	0.06			
	3	0.05	2.85	4.27	0.08	0.00	0.08	0.07	0.01	
2	1	0.06	3.68	5.52	0.10	0.00	0.11			
	2	0.08	4.48	6.72	0.13	0.00	0.13			
	3	0.07	3.96	5.95	0.11	0.00	0.12	0.12	0.01	
3	1	0.07	4.25	6.37	0.12	0.01	0.13			
	2	0.08	4.37	6.55	0.12	0.01	0.13			
	3	0.08	4.53	6.79	0.13	0.01	0.14	0.13	0.00	
4	1	0.09	4.91	7.37	0.14	0.02	0.15			
	2	0.09	5.03	7.54	0.14	0.02	0.16			
	3	0.09	4.95	7.43	0.14	0.02	0.16	0.16	0.00	
5	1	0.10	5.74	8.62	0.16	0.02	0.18			
	2	0.12	6.57	9.85	0.18	0.02	0.21			
	3	0.11	6.36	9.54	0.18	0.02	0.20	0.20	0.01	
6	1	0.14	7.69	11.54	0.22	0.03	0.25			
	2	0.17	9.44	14.16	0.26	0.03	0.30			
	3	0.15	8.31	12.47	0.23	0.03	0.27	0.27	0.03	
7	1	0.17	9.38	14.07	0.26	0.04	0.31			
	2	0.18	9.65	14.48	0.27	0.05	0.32			
	3	0.18	10.02	15.03	0.28	0.05	0.33	0.32	0.01	
8	1	0.20	11.12	16.68	0.31	0.06	0.37			
	2	0.21	11.40	17.09	0.32	0.06	0.38			

	3	0.21	11.21	16.82	0.31	0.06	0.38	0.38	0.01
24	1	0.41	22.11	33.16	0.62	0.07	0.69		
	2	0.32	17.19	25.78	0.48	0.08	0.56		
	3	0.40	21.37	32.05	0.60	0.08	0.68	0.64	0.07

Lampiran 5.12. Tabel Uji Permeasi F4

Jam	Replikasi	Serapan	Konsentrasi ($\mu\text{g/ml}$)	1.5 ml (μg)	28 ml (mg)	Faktor koreksi	Jumlah terpemeasi	rata-rata	SD
0.25	1	0.00	0.00	0.00	0.00	0.00	0.00		
	2	0.00	0.00	0.00	0.00	0.00	0.00		
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00		
	2	0.00	0.00	0.00	0.00	0.00	0.00		
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.75	1	0.00	0.00	0.00	0.00	0.00	0.00		
	2	0.00	0.00	0.00	0.00	0.00	0.00		
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
1	1	0.00	0.00	0.00	0.00	0.00	0.00		
	2	0.00	0.00	0.00	0.00	0.00	0.00		
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
2	1	0.00	0.00	0.00	0.00	0.00	0.00		
	2	0.00	0.00	0.00	0.00	0.00	0.00		
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
3	1	0.03	2.05	3.08	0.06	0.00	0.06		

	2	0.03	1.68	2.52	0.05	0.00	0.05		
	3	0.03	1.84	2.76	0.05	0.00	0.05	0.05	0.01
4	1	0.05	3.13	4.70	0.09	0.00	0.09		
	2	0.07	3.80	5.70	0.11	0.00	0.11		
	3	0.06	3.37	5.05	0.09	0.00	0.10	0.10	0.01
5	1	0.06	3.61	5.41	0.10	0.01	0.11		
	2	0.06	3.71	5.56	0.10	0.01	0.11		
	3	0.07	3.84	5.76	0.11	0.01	0.12	0.11	0.00
6	1	0.07	4.06	6.09	0.11	0.01	0.13		
	2	0.07	4.15	6.23	0.12	0.01	0.13		
	3	0.07	4.09	6.14	0.11	0.01	0.13	0.13	0.00
7	1	0.08	4.36	6.54	0.12	0.02	0.14		
	2	0.09	4.97	7.46	0.14	0.02	0.16		
	3	0.09	4.82	7.23	0.13	0.02	0.15	0.15	0.01
8	1	0.11	5.96	8.94	0.17	0.03	0.19		
	2	0.13	7.30	10.95	0.20	0.03	0.23		
	3	0.12	6.43	9.65	0.18	0.03	0.21	0.21	0.02
24	1	0.30	16.07	24.11	0.45	0.03	0.48		
	2	0.22	11.89	17.84	0.33	0.04	0.37		
	3	0.27	14.33	21.49	0.40	0.04	0.44	0.43	0.06

Lampiran 5.11. Tabel Uji Permeasi Kontrol

Jam	Replikasi	Serapan	Konsentrasi ($\mu\text{g/ml}$)	1.5 ml (μg)	28 ml (mg)	Faktor koreksi	Jumlah terpemeasi	Rata-rata	SD
0.25	1	0.07	3.93	5.89	0.11	0.00	0.11	0.11	0.01
	2	0.06	3.68	5.52	0.10	0.00	0.10		
	3	0.07	4.05	6.08	0.11	0.00	0.11		
0.5	1	0.13	6.92	10.39	0.19	0.01	0.20	0.22	0.01
	2	0.14	7.92	11.88	0.22	0.01	0.23		
	3	0.14	7.67	11.51	0.21	0.01	0.22		
0.75	1	0.17	9.30	13.94	0.26	0.02	0.28	0.30	0.03
	2	0.21	11.42	17.13	0.32	0.02	0.34		
	3	0.18	10.05	15.07	0.28	0.02	0.30		
1	1	0.25	13.50	20.26	0.38	0.03	0.41	0.42	0.01
	2	0.26	13.90	20.86	0.39	0.03	0.42		
	3	0.27	14.44	21.66	0.40	0.03	0.44		
	1	0.30	16.04	24.05	0.45	0.05	0.50		

2	2	0.30	16.44	24.65	0.46	0.06	0.52		
	3	0.30	16.17	24.25	0.45	0.05	0.51	0.51	0.01
	1	0.41	21.76	32.64	0.61	0.07	0.68		
3	2	0.41	22.07	33.11	0.62	0.08	0.70		
	3	0.40	21.30	31.95	0.60	0.08	0.67	0.69	0.01
	1	0.46	24.85	37.27	0.70	0.11	0.80		
4	2	0.47	25.16	37.74	0.70	0.11	0.82		
	3	0.46	24.54	36.81	0.69	0.11	0.80	0.81	0.01
	1	0.43	23.08	34.61	0.65	0.14	0.79		
5	2	0.45	23.91	35.87	0.67	0.15	0.82		
	3	0.44	23.77	35.66	0.67	0.15	0.81	0.81	0.02
	1	0.45	24.19	36.29	0.68	0.18	0.86		
6	2	0.45	23.91	35.87	0.67	0.19	0.86		
	3	0.42	22.52	33.77	0.63	0.18	0.81	0.84	0.02
	1	0.60	31.88	47.82	0.89	0.22	1.11		
7	2	0.56	30.01	45.02	0.84	0.22	1.06	1.10	0.04

	3	0.61	32.81	49.22	0.92	0.22	1.14		
	1	0.88	46.96	70.43	1.31	0.26	1.58		
8	2	0.91	48.20	72.30	1.35	0.27	1.62		
	3	0.92	49.11	73.66	1.38	0.27	1.64	1.61	0.03
	1	1.54	81.95	122.92	2.29	0.33	2.63		
24	2	1.42	75.39	113.08	2.11	0.34	2.45		
	3	1.63	86.66	129.98	2.43	0.34	2.77	2.61	0.16

Lampiran 6.1. Tabel Hasil Fluks kontrol

Fluks Permeasi ($\mu\text{g}/\text{cm}^2/\text{jam}^{-1}$)	Rata-rata	SD
89.78		
84.07		
92.63	88.83	4.36
81.54		
92.80		
90.18	88.17	5.89
75.26		
91.74		
81.33	82.77	8.33
83.33		
86.50		
89.16	86.33	2.92
50.97		
52.61		
51.74	51.77	0.82
46.52		
47.48		
45.91	46.64	0.79
40.97		
41.71		
40.70	41.12	0.53
32.27		
33.49		
33.18	32.98	0.64
29.13		
29.13		
27.67	28.64	0.84
32.30		
30.99		
33.11	32.13	1.07
40.25		
41.26		
41.86	41.12	0.81
22.35		
20.84		
23.52	22.24	1.34

Lampiran 6.2. Tabel Hasil Fluks F1

Fluks permeasi ($\mu\text{g}/\text{cm}^2/\text{jam}^{-1}$)	Rata-rata	SD
0.00		
0.00		
0.00	0.00	0.00
23.44		
21.82		
24.24	23.17	1.23
28.56		
32.87		
31.79	31.07	2.24
29.09		
35.96		
31.52	32.19	3.48
21.42		
22.07		
22.93	22.14	0.76
17.02		
17.45		
17.16	17.21	0.22
15.03		
15.25		
14.71	15.00	0.27
13.76		
13.93		
13.59	13.76	0.17
11.75		
12.19		
12.11	12.02	0.23
10.57		
10.45		
9.83	10.28	0.40
9.14		
8.60		
9.41	9.05	0.41
9.99		
7.90		
11.84	9.91	1.97

Lampiran 6.3. Tabel Hasil Fluks F2

Fluks permeasi ($\mu\text{g}/\text{cm}^{-2}/\text{jam}^{-1}$)	Rata-rata	SD
0.00		
0.00		
0.00	0.00	0.00
0.00		
0.00		
0.00	0.00	0.00
24.88		
23.32		
25.65	24.62	1.19
33.64		
38.24		
37.17	36.35	2.41
23.23		
28.28		
25.09	25.54	2.55
20.00		
20.78		
21.39	20.72	0.70
18.29		
18.89		
18.57	18.58	0.30
17.58		
17.98		
17.39	17.65	0.30
17.13		
17.46		
17.04	17.21	0.22
16.45		
17.08		
16.92	16.82	0.33
15.60		
15.60		
14.82	15.34	0.45
5.91		
6.11		
5.40	5.81	0.37

Lampiran 6.3. Tabel Hasil Fluks F3

Fluks permeasi ($\mu\text{g}/\text{cm}^2/\text{jam}^{-1}$)	Rata-rata	SD
0.00		
0.00		
0.00	0.00	0.00
0.00		
0.00		
0.00	0.00	0.00
0.00		
0.00		
0.00	0.00	0.00
14.15		
12.34		
16.27	14.25	1.97
10.90		
13.13		
11.76	11.93	1.12
8.72		
9.00		
9.32	9.01	0.30
7.81		
8.03		
7.94	7.93	0.11
7.50		
8.49		
8.27	8.09	0.52
8.40		
10.14		
9.07	9.21	0.88
8.91		
9.28		
9.53	9.24	0.31
9.40		
9.74		
9.58	9.57	0.17
5.89		
4.77		
5.75	5.47	0.61

Lampiran 6.3. Tabel Hasil Fluks F4

Fluks permeasi ($\mu\text{g}/\text{cm}^2/\text{jam}^{-1}$)	Rata-rata	SD
0.00		
0.00		
0.00	0.00	0.00
0.00		
0.00		
0.00	0.00	0.00
0.00		
0.00		
0.00	0.00	0.00
0.00		
0.00		
0.00	0.00	0.00
0.00		
0.00		
0.00	0.00	0.00
3.91		
3.20		
3.51	3.54	0.35
4.63		
5.56		
4.95	5.05	0.47
4.44		
4.57		
4.71	4.57	0.13
4.31		
4.43		
4.36	4.37	0.06
4.12		
4.64		
4.51	4.42	0.27
4.92		
5.91		
5.28	5.37	0.50
4.12		
3.16		
3.72	3.67	0.48

Lampiran 7. Tabel Uji Retensi

Formula	Replikasi	Serapan	Konsentrasi ($\mu\text{g/ml}$)	Jumlah metrodinazole terdeposisi setelah 8 jam (mg)	rata-rata	SD
F1	1	0.46	20.73	0.62	0.65	0.03
	2	0.50	22.79	0.68		
	3	0.48	21.87	0.66		
F2	1	0.72	32.70	0.98	0.95	0.04
	2	0.66	29.91	0.90		
	3	0.71	32.18	0.97		
F3	1	1.87	84.06	2.52	2.53	0.05
	2	1.91	86.12	2.58		
	3	1.84	82.61	2.48		
F4	1	0.06	3.09	0.09	0.10	0.01
	2	0.07	3.51	0.11		
	3	0.06	2.99	0.09		
KONTROL	1	0.08	3.71	0.11	0.11	0.01
	2	0.06	3.20	0.10		
	3	0.07	3.61	0.11		

Lampiran 8. Data Hasil Analisis Statistika

Lampiran 6.1. Uji pH

ANOVA

pH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.075	3	.025	94.208	.000
Within Groups	.002	8	.000		
Total	.078	11			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: pH

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-.11333*	.01333	.000	-.1560	-.0706
	3	-.15667*	.01333	.000	-.1994	-.1140
	4	-.21667*	.01333	.000	-.2594	-.1740
2	1	.11333*	.01333	.000	.0706	.1560
	3	-.04333*	.01333	.047	-.0860	-.0006

	4		-.10333*	.01333	.000	-.1460		-.0606
3	1		.15667*	.01333	.000	.1140		.1994
	2		.04333*	.01333	.047	.0006		.0860
	4		-.06000*	.01333	.009	-.1027		-.0173
4	1		.21667*	.01333	.000	.1740		.2594
	2		.10333*	.01333	.000	.0606		.1460
	3		.06000*	.01333	.009	.0173		.1027

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

Lampiran 6.2. Uji Daya Sebar

Anova

DayaSebar

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25.206	4	6.302	65.661	.000
Within Groups	5.278	55	.096		
Total	30.485	59			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: DayaSebar

Tukey HSD

(I) Beban	(J) Beban	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Beban 125	Beban 225	-.60917*	.12647	.000	-.9659	-.2525
	Beban 325	-1.05833*	.12647	.000	-1.4150	-.7016
	Beban 425	-1.46500*	.12647	.000	-1.8217	-1.1083
	Beban 525	-1.85333*	.12647	.000	-2.2100	-1.4966
Beban 225	Beban 125	.60917*	.12647	.000	.2525	.9659
	Beban 325	-.44917*	.12647	.007	-.8059	-.0925
	Beban 425	-.85583*	.12647	.000	-1.2125	-.4991
	Beban 525	-1.24417*	.12647	.000	-1.6009	-.8875
Beban 325	Beban 125	1.05833*	.12647	.000	.7016	1.4150
	Beban 225	.44917*	.12647	.007	.0925	.8059
	Beban 425	-.40667*	.12647	.018	-.7634	-.0500
	Beban 525	-.79500*	.12647	.000	-1.1517	-.4383
Beban 425	Beban 125	1.46500*	.12647	.000	1.1083	1.8217
	Beban 225	.85583*	.12647	.000	.4991	1.2125
	Beban 325	.40667*	.12647	.018	.0500	.7634
	Beban 525	-.38833*	.12647	.026	-.7450	-.0316

Beban 525	Beban 125	1.85333*	.12647	.000	1.4966	2.2100
	Beban 225	1.24417*	.12647	.000	.8875	1.6009
	Beban 325	.79500*	.12647	.000	.4383	1.1517
	Beban 425	.38833*	.12647	.026	.0316	.7450

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

Lampiran 6.3. Uji Viskositas

Anova

ANOVA

Viskositas

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	779669166.667	3	259889722.222	96.107	.000
Within Groups	21633333.333	8	2704166.667		
Total	801302500.000	11			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Viskositas

Tukey HSD

(I) Formula	(J) Formula	Mean	Std. Error	Sig.	95% Confidence Interval
-------------	-------------	------	------------	------	-------------------------

		Difference (I-J)			Lower Bound	Upper Bound
Formula 1	Formula 2	-6300.00000*	1342.67560	.007	-10599.7199	-2000.2801
	Formula 3	-12333.33333*	1342.67560	.000	-16633.0532	-8033.6134
	Formula 4	-21866.66667*	1342.67560	.000	-26166.3866	-17566.9468
Formula 2	Formula 1	6300.00000*	1342.67560	.007	2000.2801	10599.7199
	Formula 3	-6033.33333*	1342.67560	.009	-10333.0532	-1733.6134
	Formula 4	-15566.66667*	1342.67560	.000	-19866.3866	-11266.9468
Formula 3	Formula 1	12333.33333*	1342.67560	.000	8033.6134	16633.0532
	Formula 2	6033.33333*	1342.67560	.009	1733.6134	10333.0532
	Formula 4	-9533.33333*	1342.67560	.000	-13833.0532	-5233.6134
Formula 4	Formula 1	21866.66667*	1342.67560	.000	17566.9468	26166.3866
	Formula 2	15566.66667*	1342.67560	.000	11266.9468	19866.3866
	Formula 3	9533.33333*	1342.67560	.000	5233.6134	13833.0532

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

Lampiran 6.3. Uji Reologi

Kruskal-Wallis Test

Ranks			
	Formula	N	Mean Rank
ShearingStress	Formula 1	18	30.81
	Formula 2	18	33.64
	Formula 3	18	35.97

	Formula 4	18	45.58
	Total	72	
RateofShare	Formula 1	18	36.50
	Formula 2	18	36.50
	Formula 3	18	36.50
	Formula 4	18	36.50
	Total	72	

Post Hoc Tests

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
ShearingStress	Formula 1	Formula 2	-187.02389	730.21067	.994	-2110.1922	1736.1444
		Formula 3	-380.29000	730.21067	.954	-2303.4583	1542.8783
		Formula 4	-1249.87167	730.21067	.326	-3173.0400	673.2967
	Formula 2	Formula 1	187.02389	730.21067	.994	-1736.1444	2110.1922
		Formula 3	-193.26611	730.21067	.993	-2116.4344	1729.9022
		Formula 4	-1062.84778	730.21067	.470	-2986.0161	860.3206
	Formula 3	Formula 1	380.29000	730.21067	.954	-1542.8783	2303.4583
		Formula 2	193.26611	730.21067	.993	-1729.9022	2116.4344
		Formula 4	-869.58167	730.21067	.635	-2792.7500	1053.5867

	Formula 4	Formula 1	1249.87167	730.21067	.326	-673.2967	3173.0400
		Formula 2	1062.84778	730.21067	.470	-860.3206	2986.0161
		Formula 3	869.58167	730.21067	.635	-1053.5867	2792.7500
RateofShare	Formula 1	Formula 2	.00000	20.40353	1.000	-53.7371	53.7371
		Formula 3	.00000	20.40353	1.000	-53.7371	53.7371
		Formula 4	.00000	20.40353	1.000	-53.7371	53.7371
	Formula 2	Formula 1	.00000	20.40353	1.000	-53.7371	53.7371
		Formula 3	.00000	20.40353	1.000	-53.7371	53.7371
		Formula 4	.00000	20.40353	1.000	-53.7371	53.7371
	Formula 3	Formula 1	.00000	20.40353	1.000	-53.7371	53.7371
		Formula 2	.00000	20.40353	1.000	-53.7371	53.7371
		Formula 4	.00000	20.40353	1.000	-53.7371	53.7371
	Formula 4	Formula 1	.00000	20.40353	1.000	-53.7371	53.7371
		Formula 2	.00000	20.40353	1.000	-53.7371	53.7371
		Formula 3	.00000	20.40353	1.000	-53.7371	53.7371

Lampiran 6.4. Uji Permeasi

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Jam8 - Jam24	-.34583	.17835	.05148	-.45915	-.23252	-6.717	11	.000

Kruskal-Wallis Test

Ranks

	Formula	N	Mean Rank
Permeasi	Formula 1	3	5.17
	Formula 2	3	11.00
	Formula 3	3	7.83
	Formula 4	3	2.00
	Total	12	

Test Statistics^{a,b}

	Permeasi
Chi-Square	10.274
df	3
Asymp. Sig.	.016

a. Kruskal Wallis Test

b. Grouping Variable:

Formula

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Permeasi

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.24333*	.01269	.000	-.2840	-.2027
	Formula 3	-.02000	.01269	.442	-.0606	.0206
	Formula 4	.14667*	.01269	.000	.1060	.1873
Formula 2	Formula 1	.24333*	.01269	.000	.2027	.2840
	Formula 3	.22333*	.01269	.000	.1827	.2640
	Formula 4	.39000*	.01269	.000	.3494	.4306

Formula 3	Formula 1	.02000	.01269	.442	-.0206	.0606
	Formula 2	-.22333*	.01269	.000	-.2640	-.1827
	Formula 4	.16667*	.01269	.000	.1260	.2073
Formula 4	Formula 1	-.14667*	.01269	.000	-.1873	-.1060
	Formula 2	-.39000*	.01269	.000	-.4306	-.3494
	Formula 3	-.16667*	.01269	.000	-.2073	-.1260

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

Kruskal Wallis Test

Ranks			
	Formula	N	Mean Rank
Permeasi	Formula 1	3	7.33
	Formula 2	3	11.00
	Formula 3	3	5.67
	Formula 4	3	2.00
	Total	12	

Test Statistics ^{a,b}	
	Permeasi
Chi-Square	9.667
df	3

Asymp. Sig.	.022
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a. Kruskal Wallis Test

b. Grouping Variable:

Formula

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Permeasi

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.48000*	.10255	.007	-.8084	-.1516
	Formula 3	.04333	.10255	.973	-.2851	.3717
	Formula 4	.25667	.10255	.134	-.0717	.5851
Formula 2	Formula 1	.48000*	.10255	.007	.1516	.8084
	Formula 3	.52333*	.10255	.004	.1949	.8517
	Formula 4	.73667*	.10255	.000	.4083	1.0651
Formula 3	Formula 1	-.04333	.10255	.973	-.3717	.2851
	Formula 2	-.52333*	.10255	.004	-.8517	-.1949
	Formula 4	.21333	.10255	.238	-.1151	.5417
Formula 4	Formula 1	-.25667	.10255	.134	-.5851	.0717
	Formula 2	-.73667*	.10255	.000	-1.0651	-.4083
	Formula 3	-.21333	.10255	.238	-.5417	.1151

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

Lampiran 6.5. Uji Permeasi (F1-F4 : Kontrol)

T-Test

Group Statistics

	Formula	N	Mean	Std. Deviation	Std. Error Mean
Permeasi	F1	3	.6867	.04163	.02404
	Kontrol	3	2.6167	.16042	.09262

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Permeasi	Equal variances assumed	2.561	.185	-20.170	4	.000	-1.93000	.09568	-2.19566	-1.66434

Equal variances not assumed			-20.170	2.268	.001	-1.93000	.09568	-2.29839	-1.56161
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Lampiran 6.6. Uji Retensi

Kruskal- Wallis Test

	Formula	N	Mean Rank
Jam ke 8	Formula 1	3	5.00
	Formula 2	3	8.00
	Formula 3	3	11.00
	Formula 4	3	2.00
	Total	12	

	Jam ke 8
Chi-Square	10.421
df	3
Asymp. Sig.	.015

a. Kruskal Wallis Test

b. Grouping Variable:

Formula

Post Hoc Test

Multiple Comparisons

Dependent Variable: Jam ke 8

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.29667*	.03028	.000	-.3936	-.1997
	Formula 3	-1.87333*	.03028	.000	-1.9703	-1.7764
	Formula 4	.55667*	.03028	.000	.4597	.6536
Formula 2	Formula 1	.29667*	.03028	.000	.1997	.3936
	Formula 3	-1.57667*	.03028	.000	-1.6736	-1.4797
	Formula 4	.85333*	.03028	.000	.7564	.9503
Formula 3	Formula 1	1.87333*	.03028	.000	1.7764	1.9703
	Formula 2	1.57667*	.03028	.000	1.4797	1.6736
	Formula 4	2.43000*	.03028	.000	2.3330	2.5270
Formula 4	Formula 1	-.55667*	.03028	.000	-.6536	-.4597
	Formula 2	-.85333*	.03028	.000	-.9503	-.7564
	Formula 3	-2.43000*	.03028	.000	-2.5270	-2.3330

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

Lampiran 6.7. Uji Retensi (F1-F4 : Kontrol)

T-Test

Group Statistics

	Formula	N	Mean	Std. Deviation	Std. Error Mean
Retensi	Formula 1	3	.6533	.03055	.01764
	kontrol	3	.1067	.00577	.00333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Retensi	Equal variances assumed	4.830	.093	30.454	4	.000	.54667	.01795	.49683	.59651
	Equal variances not assumed			30.454	2.143	.001	.54667	.01795	.47416	.61918