

BAB V

KESIMPULAN DAN SARAN

A. Kesimpulan

Dari hasil penelitian gel ibuprofen dengan variasi *gelling agent* HPMC, karbopol dan tragakan dapat disimpulkan :

1. Ibuprofen dengan variasi *gelling agent* karbopol sangat mempengaruhi pengujian mutu fisik karena memiliki viskositas tinggi, daya lekat paling lama serta daya sebar paling kecil.
2. Sediaan gel Ibuprofen dengan ketiga jenis *gelling agent*, HPMC memiliki sifat fisik yang paling baik karena sediaan kental warna putih bening, daripada karbopol yang terlalu kental dan tragakan terlalu encer.

B. Saran

Perlu dilakukan penelitian menggunakan *gelling agent* yang berbeda dengan menggunakan formula yang sama sehingga diharapkan dapat menghasilkan sediaan gel ibuprofen yang lebih baik.

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LAMPIRAN

Lampiran 1. Certificate of Analysis Ibuprofen



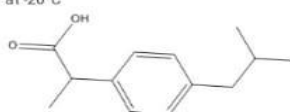
Certificate of Analysis

Catalog Number: M3359
Product Name: [Ibuprofen](#)
CAS Number: 15687-27-1

Physical and Chemical Properties

Formula: $C_{13}H_{18}O_2$
Molecular Weight: 206.28
Solubility: DMSO 40 mg/mL
Storage: at -20°C

Chemical Structure:



Analytical Data

HPLC: Shows Min 98.82% purity
H-NMR: Consistent with structure

Product Information

Description: Ibuprofen (Dolgesic) is an anti-inflammatory inhibitor targeting COX-1 and COX-2 with IC50 of 13 μ M and 370 μ M, respectively

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide.

Stability and Solubility Advice: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials and used within 1 month. Avoid repeated freeze and thaw cycles. Storage conditions for some special products should refer to their storage details.

Lampiran 2. Hasil perhitungan formula gel Ibuprofen

1. Formula 1

- Ibuprofen : $\frac{5}{100} \times 100 \text{ g} = 100 \text{ g}$
- HPMC : $\frac{2}{100} \times 100 \text{ g} = 2 \text{ g}$
- Propilenglikol : $\frac{15}{100} \times 100 \text{ g} = 15 \text{ g}$
- Gliserin : $\frac{5}{100} \times 100 \text{ g} = 5 \text{ g}$
- Nipagin : $\frac{0,3}{100} \times 100 \text{ g} = 0,3 \text{ g}$
- Trietanolamin (TEA) : $\frac{4 \text{ ml}}{100} \times 100 \text{ g} = 4 \text{ ml}$
- Aquadest ad 100 = $100 \text{ g} - (5 + 2 + 15 + 0,3 + 5 + 4) \text{ g} = 68,7 \text{ g}$

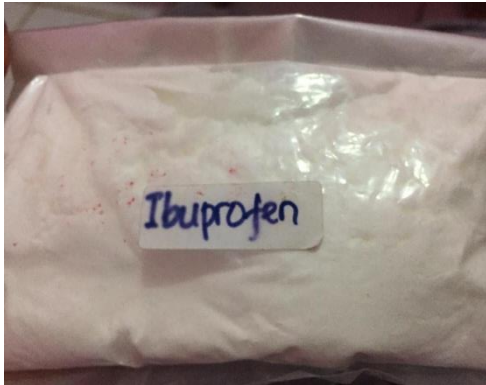
2. Formula 2

- Ibuprofen : $\frac{5}{100} \times 100 \text{ g} = 5 \text{ g}$
- Carbopol : $\frac{2}{100} \times 100 \text{ g} = 2 \text{ g}$
- Propilenglikol : $\frac{15}{100} \times 100 \text{ g} = 15 \text{ g}$
- Gliserin : $\frac{5}{100} \times 100 \text{ g} = 5 \text{ g}$
- Nipagin : $\frac{0,3}{100} \times 100 \text{ g} = 0,3 \text{ g}$
- Trietanolamin (TEA) : $\frac{4 \text{ ml}}{100} \times 50 \text{ g} = 4 \text{ ml}$
- Aquadest ad 100 = $100 \text{ g} - (5 + 2 + 15 + 0,3 + 5 + 4) \text{ g} = 68,7 \text{ g}$

3. Formula 3

- Ibuprofen : $\frac{5}{100} \times 100 \text{ g} = 5 \text{ g}$
- Tragakan : $\frac{2}{100} \times 100 \text{ g} = 2 \text{ g}$
- Propilenglikol : $\frac{15}{100} \times 100 \text{ g} = 15 \text{ g}$
- Gliserin : $\frac{5}{100} \times 100 \text{ g} = 5 \text{ g}$
- Nipagin : $\frac{0,3}{100} \times 100 \text{ g} = 0,3 \text{ g}$
- Trietanolamin (TEA) : $\frac{4 \text{ ml}}{100} \times 100 \text{ g} = 4 \text{ ml}$
- Aquadest ad 100 = $100 \text{ g} - (5 + 2 + 15 + 0,3 + 5 + 4) \text{ g} = 68,7$.

Lampiran 3. Gambar bahan formula gel Ibuprofen

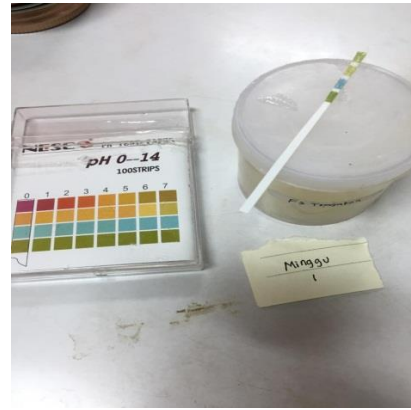


Lampiran 4. Gambar sediaan gel Ibuprofen

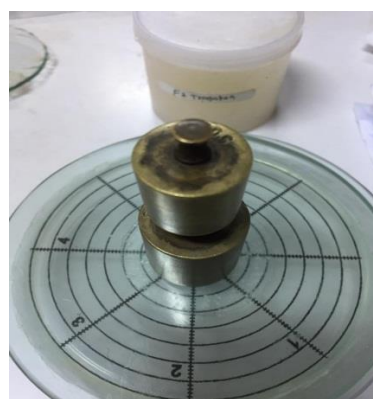


Lampiran 5. Gambar Alat dan Alat uji gel Ibuprofen

1. Uji pH



2. Uji Daya sebar



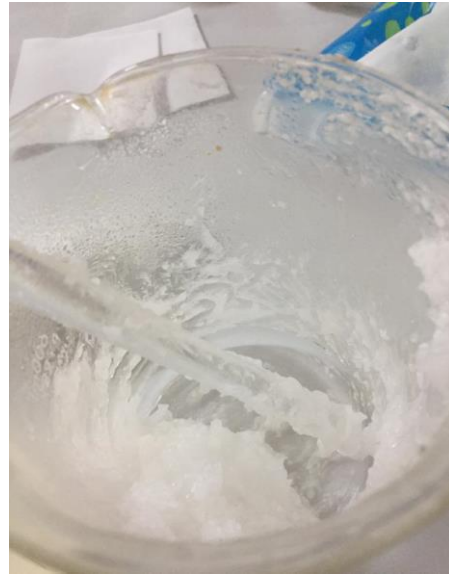
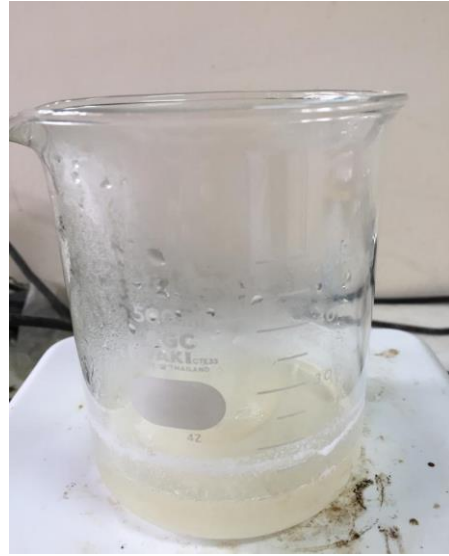
3. Uji Daya lekat



4. Uji Viskositas



Lampiran 6. Gambar Alat dan pembuatan *gelling agent*



Lampiran 7. Data hasil pengujian daya lekat gel Ibuprofen

Formulasi	Minggu ke	Replikasi			Rata - Rata (detik)
		1	2	3	
F1	1	1,19	1,17	1,21	1,19
	2	1,19	1,25	1,18	1,20
	3	1,28	1,19	1,20	1,22
F2	1	1,20	1,40	1,30	1,30
	2	1,40	1,50	1,20	1,36
	3	1,20	1,50	1,70	1,46
F3	1	1,10	1,12	1,10	1,10
	2	1,10	1,15	1,12	1,12
	3	1,10	1,23	1,12	1,15

Lampiran 8. Data hasil pengujian daya sebar gel Ibuprofen**Pengujian minggu ke-1**

Formulasi	Beban (gram)	Replikasi			Rata - Rata (cm)
		1	2	3	
F1	0	3,47	3,40	3,27	3,38
	50	4	3,95	3,67	3,87
	100	4,40	4,35	4,17	4,30
	150	4,62	4,70	4,32	4,57
	200	5,15	4,92	4,80	4,90
F2	0	2,52	2,37	2,40	2,43
	50	2,70	2,57	2,60	2,62
	100	2,87	2,72	2,77	2,78
	150	3,02	2,82	2,90	2,91
	200	3,07	2,92	3,12	3,03
F3	0	3,62	3,90	3,92	3,81
	50	4,15	4,42	4,52	4,36
	100	4,57	4,90	4,92	4,79
	150	4,95	5,20	5,25	5,13
	200	5,17	5,50	5,70	5,45

Pengujian minggu ke-2

Formulasi	Beban (gram)	Replikasi			Rata - Rata (cm)
		1	2	3	
F1	0	3,45	3,47	3,40	3,44
	50	3,92	3,97	3,52	3,80
	100	4,20	4,35	4,25	4,26
	150	4,47	4,62	4,60	4,56
	200	4,77	4,92	4,80	4,83
F2	0	2,52	2,37	2,40	2,43
	50	2,70	2,57	2,60	2,62
	100	2,87	2,72	2,77	2,78
	150	3,02	2,82	2,90	2,91
	200	3,07	2,92	3,12	3,03
F3	0	3,22	3,27	3,47	3,32
	50	4,20	4,20	4,25	4,21
	100	4,52	4,55	4,72	4,59
	150	4,77	4,82	5,02	4,83
	200	5	5,07	5,30	5,12

Pengujian minggu ke-3

Formulasi	Beban (gram)	Replikasi			Rata - Rata (cm)
		1	2	3	
F1	0	3,97	3,80	3,77	3,84
	50	4,45	4,40	4,38	4,40
	100	4,85	4,82	4,82	4,83
	150	4,95	4,95	4,95	4,95
	200	5,07	5,10	5,07	5,08
F2	0	2,55	2,47	2,55	2,52
	50	2,75	2,65	2,70	2,70
	100	2,90	2,72	2,80	2,80
	150	3,05	2,82	2,87	2,91
	200	3,22	3,02	3,32	3,18
F3	0	4,27	3,82	3,82	3,97
	50	4,57	4,50	4,55	4,54
	100	5,60	4,65	4,72	4,65
	150	5,90	5,40	5,40	5,56
	200	6,05	5,57	5,62	5,74

Lampiran 9. Hasil uji statistik viskositas gel Ibuprofen dengan menggunakan *one way ANOVA*.

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
ujiviskositas	9	176.22	183.171	33	517

Oneway

Test of Homogeneity of Variances

ujiviskositas

Levene Statistic	df1	df2	Sig.
4.624	2	6	.061

One-Sample Kolmogorov-Smirnov Test

		ujiviskositas
N		9
Normal Parameters ^{a,b}	Mean	176.22
	Std. Deviation	183.171
Most Extreme Differences	Absolute	.361
	Positive	.361
	Negative	-.217
Kolmogorov-Smirnov Z		1.084
Asymp. Sig. (2-tailed)		.191

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

ujiviskositas

Levene Statistic	df1	df2	Sig.
5.079	2	6	.051

ANOVA

ujiviskositas

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	248322.889	2	124161.444	37.080	.000
Within Groups	20090.667	6	3348.444		
Total	268413.556	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: ujiviskositas

	(I) Formulasigel	(J) Formulasigel	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	Formula 1	Formula 2	-345.333	47.247	.001	-490.30	-200.37
		Formula 3	13.667	47.247	.955	-131.30	158.63
	Formula 2	Formula 1	345.333	47.247	.001	200.37	490.30
		Formula 3	359.000	47.247	.001	214.03	503.97
	Formula 3	Formula 1	-13.667	47.247	.955	-158.63	131.30
		Formula 2	-359.000	47.247	.001	-503.97	-214.03
LSD	Formula 1	Formula 2	-345.333	47.247	.000	-460.94	-229.72
		Formula 3	13.667	47.247	.782	-101.94	129.28
	Formula 2	Formula 1	345.333	47.247	.000	229.72	460.94
		Formula 3	359.000	47.247	.000	243.39	474.61
	Formula 3	Formula 1	-13.667	47.247	.782	-129.28	101.94
		Formula 2	-359.000	47.247	.000	-474.61	-243.39

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

Homogeneous Subsets

ujiviskositas

	Formulasigel	N	Subset for alpha = 0.05	
			1	2
Student-Newman-Keuls ^a	Formula 3	3	52.00	
	Formula 1	3	65.67	
	Formula 2	3		411.00
	Sig.		.782	1.000
Tukey HSD ^a	Formula 3	3	52.00	
	Formula 1	3	65.67	
	Formula 2	3		411.00
	Sig.		.955	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 10. Hasil uji statistik uji daya lekat gel Ibuprofen dengan menggunakan *one way ANOVA*

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Ujidayalekat	9	1.2333	.11864	1.10	1.46

One-Sample Kolmogorov-Smirnov Test

		Ujidayalekat
N		9
Normal Parameters ^{a,b}	Mean	1.2333
	Std. Deviation	.11864
Most Extreme Differences	Absolute	.211
	Positive	.211
	Negative	-.131
Kolmogorov-Smirnov Z		.634
Asymp. Sig. (2-tailed)		.816

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Test of Homogeneity of Variances

Ujidayalekat

Levene Statistic	df1	df2	Sig.
3.308	2	6	.108

ANOVA

Ujidayalekat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.098	2	.049	19.824	.002
Within Groups	.015	6	.002		
Total	.113	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Ujidayalekat

	(I) Formulasigel	(J) Formulasigel	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	Formulasi 1	Formulasi 2	-.17000	.04055	.014	-.2944	-.0456
		Formulasi 3	.08000	.04055	.200	-.0444	.2044
	Formulasi 2	Formulasi 1	.17000	.04055	.014	.0456	.2944
		Formulasi 3	.25000	.04055	.002	.1256	.3744
	Formulasi 3	Formulasi 1	-.08000	.04055	.200	-.2044	.0444
		Formulasi 2	-.25000	.04055	.002	-.3744	-.1256
LSD	Formulasi 1	Formulasi 2	-.17000	.04055	.006	-.2692	-.0708
		Formulasi 3	.08000	.04055	.096	-.0192	.1792
	Formulasi 2	Formulasi 1	.17000	.04055	.006	.0708	.2692
		Formulasi 3	.25000	.04055	.001	.1508	.3492
	Formulasi 3	Formulasi 1	-.08000	.04055	.096	-.1792	.0192
		Formulasi 2	-.25000	.04055	.001	-.3492	-.1508

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

Homogeneous Subsets

Ujidayalekat

	Formulasigel	N	Subset for alpha = 0.05	
			1	2
Student-Newman-Keuls ^a	Formulasi 3	3	1.1233	
	Formulasi 1	3	1.2033	
	Formulasi 2	3		1.3733
	Sig.		.096	1.000
Tukey HSD ^a	Formulasi 3	3	1.1233	
	Formulasi 1	3	1.2033	
	Formulasi 2	3		1.3733
	Sig.		.200	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 11. Hasil uji statistik uji daya sebar gel ibuprofen dengan menggunakan *one way ANOVA*

Hasil uji statistik uji daya sebar dengan beban 50 gram

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Ujidayasebar	9	3.6200	.78867	2.57	4.52

One-Sample Kolmogorov-Smirnov Test

		Ujidayasebar
N		9
Normal Parameters ^{a,b}	Mean	3.6200
	Std. Deviation	.78867
Most Extreme Differences	Absolute	.218
	Positive	.212
	Negative	-.218
Kolmogorov-Smirnov Z		.653
Asymp. Sig. (2-tailed)		.787

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Test of Homogeneity of Variances

Ujidayasebar

Levene Statistic	df1	df2	Sig.
2.096	2	6	.204

ANOVA

Ujidayasebar

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.830	2	2.415	99.387	.000
Within Groups	.146	6	.024		
Total	4.976	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Ujidayasebar

	(I) Formulasi	(J) Formulasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	Formula1	Formula 2	1.25000	.12728	.000	.8595	1.6405
		Formula 3	-.49000	.12728	.020	-.8805	-.0995
	Formula 2	Formula1	-1.25000	.12728	.000	-1.6405	-.8595
		Formula 3	-1.74000	.12728	.000	-2.1305	-1.3495
	Formula 3	Formula1	.49000	.12728	.020	.0995	.8805
		Formula 2	1.74000	.12728	.000	1.3495	2.1305
LSD	Formula1	Formula 2	1.25000	.12728	.000	.9386	1.5614
		Formula 3	-.49000	.12728	.008	-.8014	-.1786
	Formula 2	Formula1	-1.25000	.12728	.000	-1.5614	-.9386
		Formula 3	-1.74000	.12728	.000	-2.0514	-1.4286
	Formula 3	Formula1	.49000	.12728	.008	.1786	.8014
		Formula 2	1.74000	.12728	.000	1.4286	2.0514

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

Homogeneous Subsets

Ujidayasebar

	Formulasi	N	Subset for alpha = 0.05		
			1	2	3
Student-Newman-Keuls ^a	Formula 2	3	2.6233		
	Formula1	3		3.8733	
	Formula 3	3			4.3633
	Sig.		1.000	1.000	1.000
Tukey HSD ^a	Formula 2	3	2.6233		
	Formula1	3		3.8733	
	Formula 3	3			4.3633
	Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 12. Hasil uji statistik uji viskositas gel ibuprofen dengan menggunakan *Independent T-Test*.

Formula 1

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Ujiviskositas	6	62.50	22.967	40	85

One-Sample Kolmogorov-Smirnov Test

		Ujiviskositas
N		6
Normal Parameters ^{a,b}	Mean	62.50
	Std. Deviation	22.967
	Absolute	.277
Most Extreme Differences	Positive	.277
	Negative	-.277
Kolmogorov-Smirnov Z		.678
Asymp. Sig. (2-tailed)		.747

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	Minggupengujian	N	Mean	Std. Deviation	Std. Error Mean
Ujiviskositas	Minggu 1	3	41.67	2.887	1.667
	Minggu 3	3	83.33	2.887	1.667

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
Ujiviskositas f1	Equal variances assumed	.000	1.000	-17.678	4	.000	-41.667	2.357	-48.211	-35.123
	Equal variances not assumed			-17.678	4.000	.000	-41.667	2.357	-48.211	-35.123

Formula 2

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
UjiviskositasF2	6	425.00	103.682	300	550

One-Sample Kolmogorov-Smirnov Test

		UjiviskositasF2
N		6
Normal Parameters ^{a,b}	Mean	425.00
	Std. Deviation	103.682
Most Extreme Differences	Absolute	.265
	Positive	.265
	Negative	-.265
Kolmogorov-Smirnov Z		.650
Asymp. Sig. (2-tailed)		.792

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	Minggupengujian	N	Mean	Std. Deviation	Std. Error Mean
UjiviskositasF2	Minggu 1	3	333.33	28.868	16.667
	Minggu 3	3	516.67	28.868	16.667

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
UjiviskositasF2	Equal variances assumed	.000	1.000	-7.778	4	.001	-183.333	23.570	-248.775	-117.892
	Equal variances not assumed			-7.778	4.000	.001	-183.333	23.570	-248.775	-117.892

Formula 3

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Ujiviskositasf3	6	55.83	24.782	30	80

One-Sample Kolmogorov-Smirnov Test

		Ujiviskositasf3
N		6
Normal Parameters ^{a,b}	Mean	55.83
	Std. Deviation	24.782
Most Extreme Differences	Absolute	.300
	Positive	.300
	Negative	-.280
Kolmogorov-Smirnov Z		.734
Asymp. Sig. (2-tailed)		.654

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	Minggupengujian	N	Mean	Std. Deviation	Std. Error Mean
Ujiviskositasf3	Minggu 1	3	33.33	2.887	1.667
	Minggu 3	3	78.33	2.887	1.667

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
Ujiviskositasf3	Equal variances assumed	.000	1.000	-19.092	4	.000	-45.000	2.357	-51.544	-38.456
	Equal variances not assumed			-19.092	4.000	.000	-45.000	2.357	-51.544	-38.456

Lampiran 13. Hasil uji statistik uji daya lekat gel ibuprofen dengan menggunakan *Independent T-Test*.

**Formula 1
NPar Tests**

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
UjidayalekatF1	6	1.2067	.03830	1.17	1.28

One-Sample Kolmogorov-Smirnov Test

		UjidayalekatF1
N		6
Normal Parameters ^{a,b}	Mean	1.2067
	Std. Deviation	.03830
Most Extreme Differences	Absolute	.299
	Positive	.299
	Negative	-.169
Kolmogorov-Smirnov Z		.732
Asymp. Sig. (2-tailed)		.658

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	Minggupengujian	N	Mean	Std. Deviation	Std. Error Mean
UjidayalekatF1	minggu 1	3	1.1900	.02000	.01155
	minggu 3	3	1.2233	.04933	.02848

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
Uji Dayalekat F1	Equal variances assumed	4.209	.110	-1.085	4	.339	-.03333	.03073	-.11866	.05199
	Equal variances not assumed			-1.085	2.640	.367	-.03333	.03073	-.13912	.07246

Formula 2

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
ujidayalekatF2	6	1.3833	.19408	1.20	1.70

One-Sample Kolmogorov-Smirnov Test

		ujidayalekatF2
N		6
Normal Parameters ^{a,b}	Mean	1.3833
	Std. Deviation	.19408
Most Extreme Differences	Absolute	.172
	Positive	.166
	Negative	-.172
Kolmogorov-Smirnov Z		.422
Asymp. Sig. (2-tailed)		.994

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	Minggupengujian	N	Mean	Std. Deviation	Std. Error Mean
ujidayalekatF2	minggu 1	3	1.3000	.10000	.05774
	minggu 3	3	1.4667	.25166	.14530

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
ujidaya lekatF2	Equal variances assumed	1.923	.238	-1.066	4	.346	-.16667	.15635	-.60076	.26742
	Equal variances not assumed			-1.066	2.616	.375	-.16667	.15635	-.70819	.37485

Formula 3 NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
ujidayalekatF3	6	1.1283	.05076	1.10	1.23

One-Sample Kolmogorov-Smirnov Test

		ujidayalekatF3
N		6
Normal Parameters ^{a,b}	Mean	1.1283
	Std. Deviation	.05076
	Absolute	.399
Most Extreme Differences	Positive	.399
	Negative	-.288
Kolmogorov-Smirnov Z		.976
Asymp. Sig. (2-tailed)		.296

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	Minggupengujian	N	Mean	Std. Deviation	Std. Error Mean
ujidayalekatF3	minggu 1	3	1.1067	.01155	.00667
	minggu 3	3	1.1500	.07000	.04041

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	
ujidayalekatF3	Equal variances assumed	9.143	.039	-1.058	4	.350	-.04333	.04096	-.15706	.07039
	Equal variances not assumed			-1.058	2.109	.396	-.04333	.04096	-.21114	.12448

Lampiran 14. Hasil uji statistik uji daya sebar gel ibuprofen dengan menggunakan *Independent T-Test*.

**Formula 1
NPar Tests**

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
UjiDayaSebarF1	6	3.7767	.16609	3.57	4.00

One-Sample Kolmogorov-Smirnov Test

		UjiDayaSebarF1
		1
N		6
Normal Parameters ^{a,b}	Mean	3.7767
	Std. Deviation	.16609
Most Extreme Differences	Absolute	.230
	Positive	.230
	Negative	-.185
Kolmogorov-Smirnov Z		.564
Asymp. Sig. (2-tailed)		.908

a. est distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	Minggupengujian	N	Mean	Std. Deviation	Std. Error Mean
UjiDayaSebarF1	Minggu 1	3	3.8733	.17786	.10269
	Minggu 3	3	3.6800	.09644	.05568

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
UjiDayaSebarF1	Equal variances assumed	2.190	.213	1.655	4	.173	.19333	.11681	-.13098	.51765
	Equal variances not assumed			1.655	3.082	.194	.19333	.11681	-.17285	.55951

Formula 2

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
UjiDayaSebarF2	6	2.5433	.14828	2.35	2.70

One-Sample Kolmogorov-Smirnov Test

		UjiDayaSebarF2
N		6
Normal Parameters ^{a,b}	Mean	2.5433
	Std. Deviation	.14828
Most Extreme Differences	Absolute	.264
	Positive	.190
	Negative	-.264
Kolmogorov-Smirnov Z		.647
Asymp. Sig. (2-tailed)		.797

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	MingguPengujian	N	Mean	Std. Deviation	Std. Error Mean
UjiDayaSebarF2	Minggu 1	3	2.6733	.02517	.01453
	Minggu 3	3	2.4133	.06028	.03480

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
UjiDayaSebarF2	Equal variances assumed	1.603	.274	6.894	4	.002	.26000	.03771	.15529	.36471
	Equal variances not assumed			6.894	2.677	.009	.26000	.03771	.13135	.38865

Formula 3

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
UjiDayaSebarF3	6	4.3783	.17949	4.20	4.57

One-Sample Kolmogorov-Smirnov Test

		UjiDayaSebarF3
N		6
Normal Parameters ^{a,b}	Mean	4.3783
	Std. Deviation	.17949
Most Extreme Differences	Absolute	.263
	Positive	.263
	Negative	-.251
Kolmogorov-Smirnov Z		.643
Asymp. Sig. (2-tailed)		.802

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	Minggupengujian	N	Mean	Std. Deviation	Std. Error Mean
UjiDayaSebarF3	Minggu 1	3	4.5400	.03606	.02082
	Minggu 3	3	4.2167	.02887	.01667

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
UjiDayaSebarF3	Equal variances assumed	.182	.692	12.125	4	.000	.32333	.02667	.24929	.39737
	Equal variances not assumed			12.125	3.817	.000	.32333	.02667	.24788	.39879