

BAB V

KESIMPULAN DAN SARAN

A. Kesimpulan

Berdasarkan dari penelitian yang telah dilakukan dapat disimpulkan sebagai berikut:

Pertama, piroxicam dapat di formulasikan menjadi emulgel piroxicam dan memenuhi stabilitas dan sifat mutu fisik yang baik.

Kedua, sediaan emulgel piroxicam dengan penambahan *penetration enhancers* mentol dan propilenglikol mampu menghambat aktivitas inflamasi eritema pada punggung tikus putih jantan yang dipapar oleh sinar UVB.

Ketiga, konsentrasi *penetration enhancers* yang optimal untuk mengatasi inflamasi eritema adalah formula 3 dengan propilenglikol 10%.

B. Saran

Pertama, perlu dilakukan penelitian mengenai peningkatan penetrasi lainnya untuk meningkatkan penetrasi ke dalam kulit sehingga dapat digunakan sebagai antiinflamasi.

Kedua, untuk peneliti selanjutnya diharapkan untuk melakukan analisis konsentrasi *penetration enhancers* yang optimal serta mengembangkan sediaan topikal atau transdermal untuk penyembuhan luka yang lebih berat.

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Lampiran 1. Surat Ethical Clirens

1/9/2020

KEPK-RSDM

HEALTH RESEARCH ETHICS COMMITTEE
KOMISI ETIK PENELITIAN KESEHATAN

Dr. Moewardi General Hospital
RSUD Dr. Moewardi

ETHICAL CLEARANCE
KELAIKAN ETIK

Nomor : 1.491 / XII / HREC / 2019

The Health Research Ethics Committee Dr. Moewardi
 Komisi Etik Penelitian Kesehatan RSUD Dr. Moewardi

after reviewing the proposal design, herewith to certify
 setelah menilai rancangan penelitian yang diusulkan, dengan ini menyatakan

That the research proposal with topic :
 Bahwa usulan penelitian dengan judul

Formulasi Emulgel Piroxicam Dengan Propilenglikol Dan Mentol Sebagai Penetration Enhancers Serta Uji Antiinflamasi Pada Tikus Putih Jantan (Rattus norvegicus)

Principal investigator : Firda Utami
 Peneliti Utama 22164730A

Location of research : Universitas Setia Budi
 Lokasi Tempat Penelitian

Is ethically approved
 Dinyatakan layak etik

Issued on : 09 Januari 2020

Chairman
 Ketua

Dr. Wahyu Dw. Almoko., Sp.F
 19770224 201001 1 004



Lampiran 3. Sertifikat Analisis Piroxicam

DRUG MASTER FILE (TYPE II) Common Technical Document (Module 3) PIROXICAM USP	1  RAMDEV CHEMICAL PVT.LTD.
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DRUG MASTER FILE
 (TYPE II)
 FOR
 PIROXICAM USP
 IN
 COMMON TECHNICAL DOCUMENT (MODULE 3)
 FORMAT
 OPEN PART DMF
 (April- 2017)

Ramdev Chemical Private Limited,
 E-41 & 129, M.I.D.C., Tarapur, Boisar,
 Dist.Thane-401 506.
 Maharashtra, India.

April 2017 (DMF /CTD M3/ PX -01/00)



Letter No: MH/TZ/GMP/6078987
Food & Drugs Administration, KONKAN Division
OFFICE OF JOINT COMMISSIONER (K.D.)
4TH FLESH BLD, WAGLE ESTATE
Thane - 400604

CERTIFICATE No: 6078987

Issue & Valid Up to Dt: 18/12/2017 - 17/12/2018

GMP CERTIFICATE

This is to certify that **RAMDEV CHEMICALS PVT. LTD., (705361), PLOT NO.E-41, MIDC, TARAPUR, BOISAR - 401506, Dist - THANE-ZONE4** is holding valid Drugs Manufacturing License in

Form 25, Licence No. KD/442, Iss Dt: 03/05/2001, Val Dt: 31/12/2017, Ren Dt: 26/05/2013,

issued by this administration under the provision of DRUGS & COSMETICS ACT 1940 & RULES THERE UNDER. Under the said licenses the firm is permitted to manufacture and sell their products covered under the

Categories of: Bulk Drugs / API

The firm has employed competent technical persons in manufacturing and quality control departments. The said firm observes GOOD MANUFACTURING PRACTICES (GMP) in the manufacturing and testing of the said categories of products by and large as laid down in revised Schedule 'M' of the Drugs & Cosmetics Rules 1945.

The manufacturing plant is subject to regular inspection by the Competent Authority under The Act.

This Certificate is issued for: purpose of - - (For Export Registration)

This Certificate is Valid for a period: 18/12/2017 - 17/12/2018

eSign
Digitally Sign with Aadhaar

VIRAJ TUKARAM PAUNIKAR

e-Signed on 18-12-2017 23:27

(Organic Authentication on AADHAR from UIDAI Server)

IPAV #45YF3Y29M1



V.T. Paunikar

V.T. Paunikar
Licensing Authority
Food & Drugs Administration
KONKAN Division, Maharashtra State

Applicant:

RAMDEV CHEMICALS PVT. LTD., (705361)

PLOT NO.E-41, MIDC, TARAPUR, BOISAR - 401506

Taluka: MIDC TARAPUR BOISAR District: THANE-ZONE4



Fee Payment(s): DB-Id: 245444 - 31/10/2017 (Amt: 3500) Balance: 200

This License/Certificate is eSIGNED with Seeding from AADHAR via UIDAI Server. Physical Signature is NOT Required

Division	MEGID No.	Type: GMP Certificate	CERTIFICATE No.	Issue Dt / Validity Dt.
KONKAN (TZ4)	705361	CMP-70502-31/10/2017	6078987	18/12/2017 - 17/12/2018


RAMDEV CHEMICAL PVT. LTD.

Regd. Office & Factory:
E-41 & 129, M.I.D.C. Industrial Area, Tarapur,
Bolsar, Dist. Palghar - 401 506, Maharashtra (India)
Telephone : 0091-2525-645057; +91 9326010323
E-mail : qualityunits@ramdevchem.com
Website : www.ramdevchem.com

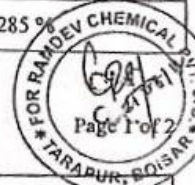
Format No.: RCPL/QC/3076/F-01

Lic. No.: KD-442

**Certificate of Analysis
(Amended)**

Name of Product : Piroxicam USP	
Batch No. : PX-26/18-19	Date of Mfg. : August 2018
Batch Size : 230 Kgs.	Date of Exp. : July 2023
Batch Quantity : 200 Kgs.	Approved Date : 19/08/2018
A.R.No. : FG-143/08-18	Reference : USP + In-House
Date of Release : 19/08/2018	

Sr.No.	Test Parameters	Specifications	Results
01.	Description	Off-white to light tan or light yellow powder, odourless.	Off-white odourless powder.
02.	Solubility	Very slightly soluble in water, in dilute acids & in organic solvent, slightly soluble in alcohol and in aqueous alkaline solutions.	Very slightly soluble in water, in dilute acids & in organic solvent, slightly soluble in alcohol and in aqueous alkaline solutions.
03.	Identification		
	A). By IR	IR absorption spectrum of the sample should be concordant with similarly recorded spectrum of Piroxicam Working Standard.	IR absorption spectrum of the sample is concordant with similarly recorded spectrum of Piroxicam Working Standard.
	B). By UV	The sample preparation should exhibit maxima and minima at the same wavelengths as that of standard preparation.	Standard solution shows maxima at 333.60 nm & minima at 269.60 nm & Test solution shows maxima at 333.40 nm & minima at 269.60 nm, which compiles the specification.
	C). By TLC	The principal spot obtained with test solution should correspond to that spot obtained with reference solution of Piroxicam.	The principal spot obtained with test solution corresponds to that spot obtained with reference solution of Piroxicam.
04.	Water Content	Not more than 0.5% w/w	0.123 % w/w
05.	Residue on ignition	Not more than 0.3% w/w	0.050 % w/w
06.	Heavy Metals	Not more than 50 ppm.	Less than 50 ppm
07.	Assay by HPLC	Not less than 97.0% & not more than 103.0%.	98.285 %



Prepared By Name: Snehal mhaske Designation: QC officer Sign. & Date: <i>Snehal</i> 21/08/18	Reviewed By Name: Atchata Dandekar Designation: QC officer Sign. & Date: <i>Atchata</i> 21/08/18	Approved By Name: <i>Snehal & Atchata</i> Designation: <i>QC officer</i> Sign. & Date: <i>21-08-18</i>
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RAMDEV CHEMICAL PVT. LTD.

Regd. Office & Factory :
E-41 & 129, M.I.D.C. Industrial Area, Tarapur,
Boisar, Dist. Palghar - 401 506, Maharashtra (India)
Telephone : 0091-2525-645957, +91 9320010323
E-mail : qualityunits@ramdevchem.com
Website : www.ramdevchem.com

Format No.: RCPL/QC/3076/F-01

Lic. No.: KD-442

In-House Additional Test			
08.	Melting Range	Between 198°C to 200°C	198.6°C to 199.3°C
09.	Clarity of solution	A solution of 1 gm. sample in 10 ml chloroform should be clear.	A solution of 1 gm sample in 10 ml chloroform is clear.
10.	Specific Bulk Density	Between 0.25 to 0.4 gm/ml	0.308 gm/ml
11.	Particle Size By Malvern	100% Less than 15 microns	9.96 microns
12.	Assay by Potentiometric	Not less than 98.5% & not more than 101.0%, calculated on anhydrous basis.	99.770 %

Piroxicam, Batch No. PX-26/18-19 complies with USP + In-House specification for above tests.



Prepared By Name : Snehel mhalke Designation : Q.C. officers Sign. & Date : <i>Snehel</i> 21/08/18	Reviewed By Name : Alcheta Dandekar Designation : Q.C. officer Sign. & Date : <i>Alcheta</i> 21/08/18	Approved By Name : Suresh B. Suresh Designation : Q.C. officer Sign. & Date : <i>Suresh</i> 21-08-18
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Lampiran 4. Alat Uji Mutu Fisik Emulgel Piroxicam



pH meter



Uji Daya Lekat



Viskometer Rion VT-04F



Uji Daya Sebar



Konduktibilitas Elektrik

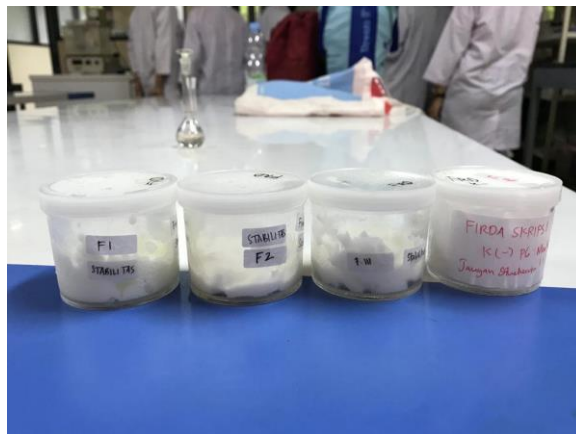


Metode Pewarnaan

Lampiran 5. Hasil Uji stabilitas



Hari ke-21



Hari ke-1

Lampiran 6. Hasil Uji Homogenitas

F1



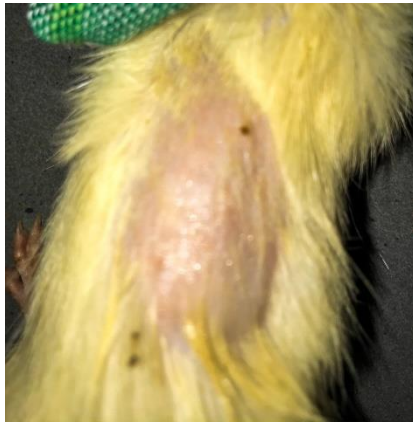
F2



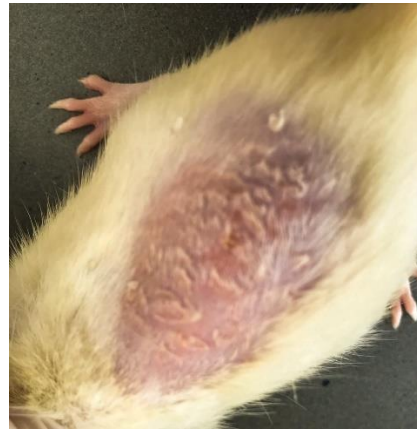
F3



F4

Lampiran 7. Hasil Uji Aktivitas Antiinflamasi Metode Eritema

Skor 0



Skor 1



Skor 2



Skor 3



Skor 4

Lampiran 8. Hasil Statistika Uji Viskositas

	Formula 1	Formula 2	Formula 3	Formula 4
Hari 1	300	340	370	280
	310	350	380	290
	310	350	385	280
Hari 7	315	350	390	280
	320	370	395	290
	320	370	400	290
Hari 14	330	370	410	300
	340	375	400	290
	330	370	410	310
Hari 21	340	390	420	315
	350	380	425	315
	340	380	430	310

Shapiro-Wilk

Tests of Normality

	Kelompok Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Viskositas	formula 1	,163	12	,200 [*]	,956	12	,719
	formula 2	,264	12	,021	,915	12	,245
	formula 3	,110	12	,200 [*]	,977	12	,970
	formula 4	,249	12	,038	,861	12	,051

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

a. Lilliefors Significance Correction

Levene's Test of Equality of Error Variances^a

Dependent Variable: Viskositas

F	df1	df2	Sig.
1,263	15	32	,280

Tests of Between-Subjects Effects

Dependent Variable: Viskositas

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	86428,646 ^a	15	5761,910	145,564	,000
Intercept	5785879,688	1	5785879,688	146169,592	,000
Formula	76768,229	3	25589,410	646,469	,000
Waktupengujian	9318,229	3	3106,076	78,469	,000
formula * waktupengujian	342,188	9	38,021	,961	,489
Error	1266,667	32	39,583		
Total	5873575,000	48			
Corrected Total	87695,313	47			

a. R Squared = ,986 (Adjusted R Squared = ,979)

Post Hoc Tukey-Bonferroni

Viskositas

	Kelompok Formula	N	Subset			
			1	2	3	4
Tukey HSD ^{a,b}	formula 4	12	295,8333			
	formula 1	12		325,4167		
	formula 2	12			366,2500	
	formula 3	12				401,2500
	Sig.		1,000	1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 39,583.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = ,05.

Lampiran 9. Hasil Statistika Uji pH

	f1	f2	f3	f4
Hari 1	6,25	6,3	6,43	5,18
	6,24	6,3	6,42	5,16
	6,24	6,28	6,43	5,17
Hari 7	6,23	6,29	6,42	5,17
	6,21	6,28	6,42	5,16
	6,22	6,27	6,41	5,16
Hari 14	6,21	6,26	6,41	5,15
	6,22	6,26	6,41	5,14
	6,21	6,27	6,4	5,15
Hari 21	6,2	6,24	6,39	5,13
	6,2	6,24	6,4	5,13
	6,19	6,25	6,4	5,14

Shapiro-Wilk

Tests of Normality

	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	Df	Sig.
pH	1,00	,174	12	,200 [*]	,954	12	,692
	2,00	,101	12	,200 [*]	,941	12	,511
	3,00	,161	12	,200 [*]	,936	12	,449
	4,00	,160	12	,200 [*]	,947	12	,600

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

a. Lilliefors Significance Correction

Levene's Test of Equality of Error Variances^a

Dependent Variable: pH

F	df1	df2	Sig.
,540	15	32	,898

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + waktupengujian + formula + waktupengujian * formula

ANOVA 2 Faktor

Tests of Between-Subjects Effects

Dependent Variable: pH

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	12,086 ^a	15	,806	15469,568	,000
Intercept	1735,689	1	1735,689	33325219,840	,000
Waktupengujian	,011	3	,004	70,080	,000
Formula	12,074	3	4,025	77274,027	,000
waktupengujian * formula	,001	9	6,481E-005	1,244	,304
Error	,002	32	5,208E-005		
Total	1747,776	48			
Corrected Total	12,087	47			

a. R Squared = 1,000 (Adjusted R Squared = 1,000)

Post Hoc Tukey-Bonferroni

Ph						
	formula	N	Subset			
			1	2	3	4
Tukey HSD ^{a,b}	4,00	12	5,1533			
	1,00	12		6,2183		
	2,00	12			6,2700	
	3,00	12				6,4117
	Sig.		1,000	1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 5,208E-005.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = ,05.

Lampiran 10. Hasil Statistika Uji Daya Lekat

	Formula 1	Formula 2	Formula 3	Formula 4
hari 1	8,23	9,35	11,19	7,23
	8,55	9,57	11,23	7,36
	8,61	9,62	11,46	7,3
hari 7	8,54	9,73	11,53	7,25
	9,12	9,84	11,72	7,38
	9,43	10,16	11,98	7,53
hari 14	9,59	10,38	12,28	7,4
	9,72	10,57	12,17	7,36
	9,68	10,42	12,24	7,45
hari 21	10,14	11,23	12,44	7,76
	10,31	11,15	12,49	7,84
	10,18	11,13	12,52	7,75

Test Shapiro-Wilk

Tests of Normality							
	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Daya lekat	1,00	,175	12	,200 [*]	,934	12	,429
	2,00	,165	12	,200 [*]	,919	12	,278
	3,00	,182	12	,200 [*]	,902	12	,170
	4,00	,232	12	,073	,856	12	,043

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

a. Lilliefors Significance Correction

Levene's Test of Equality of Error Variances^a

Dependent Variable: Daya lekat

F	df1	df2	Sig.
2,226	15	32	,028

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + waktupengujian + formula + waktupengujian * formula

Data tidak homogen menggunakan Kruskal Wallis

1. Daya lekat[^]waktu pengujian

Ranks			
	waktupengujian	N	Mean Rank
Daya lekat	1,00	12	15,21
	2,00	12	18,33
	3,00	12	21,96
	Total	36	

Test Statistics^{a,b}

	Daya lekat
Chi-Square	2,468
Df	2
Asymp. Sig.	,291

a. Kruskal Wallis Test

b. Grouping Variable:
waktupengujian2. Daya lekat^aformula atau penambahan penetrasi enhancers**Ranks**

	Formula	N	Mean Rank
Daya lekat	1,00	12	8,83
	2,00	12	16,29
	3,00	12	30,38
	Total	36	

Test Statistics^{a,b}

	Daya lekat
Chi-Square	25,878
Df	2
Asymp. Sig.	,000

a. Kruskal Wallis Test

b. Grouping Variable:
formula**Post Hoc Tukey-Bonferroni****Daya lekat**

	formula	N	Subset			
			1	2	3	4
Tukey HSD ^{a,b}	4,00	12	7,4925			
	1,00	12		9,3833		
	2,00	12			10,2925	
	3,00	12				11,9375
	Sig.		1,000	1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,033.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = ,05.

Lampiran 11. Hasil Statistika Uji Daya sebar

Shapiro-Wilk

Tests of Normality							
	formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
dayasebar	1,00	,124	19	,200*	,974	19	,855
	2,00	,129	13	,200*	,953	13	,649
	3,00	,126	16	,200*	,963	16	,724
	4,00	,107	16	,200*	,965	16	,750

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

a. Lilliefors Significance Correction

Levene's Test of Equality of Error Variances^a

Dependent Variable: dayasebar

F	df1	df2	Sig.
,389	15	48	,976

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + formula + waktu + formula * waktu

Tests of Between-Subjects Effects

Dependent Variable: dayasebar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5,084 ^a	15	,339	4,849	,000
Intercept	1078,339	1	1078,339	15427,372	,000
Formula	3,778	3	1,259	18,019	,000
Waktu	,638	3	,213	3,042	,038
formula * waktu	,184	9	,020	,293	,973
Error	3,355	48	,070		
Total	1274,909	64			
Corrected Total	8,439	63			

a. R Squared = ,602 (Adjusted R Squared = ,478)

Multiple Comparisons

Dependent Variable: dayasebar

	(I) formula	(J) formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	1,00	2,00	,2666*	,09516	,036	,0133	,5198
		3,00	,2983*	,08971	,009	,0595	,5370
		4,00	-,3255*	,08971	,004	-,5642	-,0867
	2,00	1,00	-,2666*	,09516	,036	-,5198	-,0133
		3,00	,0317	,09872	,988	-,2310	,2945
		4,00	-,5920*	,09872	,000	-,8547	-,3293
	3,00	1,00	-,2983*	,08971	,009	-,5370	-,0595
		2,00	-,0317	,09872	,988	-,2945	,2310
		4,00	-,6238*	,09347	,000	-,8725	-,3750
	4,00	1,00	,3255*	,08971	,004	,0867	,5642
		2,00	,5920*	,09872	,000	,3293	,8547
		3,00	,6238*	,09347	,000	,3750	,8725
Bonferroni	1,00	2,00	,2666*	,09516	,044	,0047	,5284
		3,00	,2983*	,08971	,010	,0514	,5452
		4,00	-,3255*	,08971	,004	-,5723	-,0786
	2,00	1,00	-,2666*	,09516	,044	-,5284	-,0047
		3,00	,0317	,09872	1,000	-,2399	,3034
		4,00	-,5920*	,09872	,000	-,8637	-,3203
	3,00	1,00	-,2983*	,08971	,010	-,5452	-,0514
		2,00	-,0317	,09872	1,000	-,3034	,2399
		4,00	-,6238*	,09347	,000	-,8810	-,3665
	4,00	1,00	,3255*	,08971	,004	,0786	,5723
		2,00	,5920*	,09872	,000	,3203	,8637
		3,00	,6238*	,09347	,000	,3665	,8810

Based on observed means.

The error term is Mean Square(Error) = ,070.

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

dayasebar

	formula	N	Subset		
			1	2	3
Tukey HSD ^{a,b,c}	3,00	16	4,1975		
	2,00	13	4,2292		
	1,00	19		4,4958	
	4,00	16			4,8213
	Sig.		,987	1,000	1,000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,070.

a. Uses Harmonic Mean Sample Size = 15,714.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

c. Alpha = ,05.

Lampiran 12. Hasil Statistika Stabilitas pH

	F1	F2	F3	F4
Hari ke 1	4,93	5,52	6,12	4,95
	4,95	5,51	6,11	4,94
	4,94	5,51	6,11	4,95
Hari ke 20	4,92	5,48	6,09	4,9
	4,91	5,47	6,1	4,89
	4,91	5,48	6,09	4,98

Tests of Normality

	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Stabilitas pH	1,00	,180	6	,200*	,920	6	,505
	2,00	,265	6	,200*	,869	6	,221
	3,00	,209	6	,200*	,907	6	,415
	4,00	,225	6	,200*	,921	6	,515

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

a. Lilliefors Significance Correction

Levene's Test of Equality of Error Variances^a

Dependent Variable: Stabilitas pH

F	df1	df2	Sig.
9,435	7	16	,000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + waktupengujian + formula + waktupengujian * formula

Tests of Between-Subjects Effects

Dependent Variable: Stabilitas pH

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5,639 ^a	7	,806	2357,742	,000
Intercept	690,797	1	690,797	2021846,049	,000
waktupengujian	,004	1	,004	12,488	,003
Formula	5,634	3	1,878	5497,008	,000
waktupengujian * formula	,000	3	7,778E-005	,228	,876
Error	,005	16	,000		
Total	696,442	24			
Corrected Total	5,644	23			

a. R Squared = ,999 (Adjusted R Squared = ,999)

Post Hoc Tukey-Bonferroni

Stabilitas pH					
	Formula	N	Subset		
			1	2	3
Tukey HSD ^{a,b}	1,00	6	4,9267		
	4,00	6	4,9350		
	2,00	6		5,4950	
	3,00	6			6,1033
	Sig.		,862	1,000	1,000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = ,000.

a. Uses Harmonic Mean Sample Size = 6,000.

b. Alpha = ,05.

Lampiran 13. Hasil Statistika Stabilitas Viskositas

	F1	F2	F3	F4
Hari ke-1	290	320	360	270
	280	330	355	260
	290	320	360	260
Hari ke-20	300	330	370	280
	310	340	375	290
	315	320	370	280

Tests of Normality

	waktupengujian	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Stabilitas	1,00	,181	12	,200*	,901	12	,162
viskositas	2,00	,163	12	,200*	,914	12	,238

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

a. Lilliefors Significance Correction

Tests of Normality

	Formula	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Stabilitas viskositas	1,00	,213	6	,200*	,948	6	,721
	2,00	,293	6	,117	,822	6	,091
	3,00	,241	6	,200*	,913	6	,456
	4,00	,209	6	,200*	,907	6	,415

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

a. Lilliefors Significance Correction

Levene's Test of Equality of Error Variances^a

Dependent Variable: Stabilitas viskositas

F	df1	df2	Sig.
,878	7	16	,544

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + formula + waktupengujian + formula * waktupengujian

Tests of Between-Subjects Effects

Dependent Variable: Stabilitas viskositas

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	29698,958 ^a	7	4242,708	110,081	,000
Intercept	2390859,375	1	2390859,375	62033,108	,000
Formula	28061,458	3	9353,819	242,694	,000
waktupengujian	1426,042	1	1426,042	37,000	,000
formula * waktupengujian	211,458	3	70,486	1,829	,183
Error	616,667	16	38,542		
Total	2421175,000	24			
Corrected Total	30315,625	23			

a. R Squared = ,980 (Adjusted R Squared = ,971)

Post Hoc Tukey-Bonferroni

Stabilitas viskositas

	Formula	N	Subset			
			1	2	3	4
Tukey HSD ^{a,b}	4,00	6	273,3333			
	1,00	6		297,5000		
	2,00	6			326,6667	
	3,00	6				365,0000
	Sig.		1,000	1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 38,542.

a. Uses Harmonic Mean Sample Size = 6,000.

b. Alpha = ,05.

Lampiran 14. Hasil Statistika Antiinflamasi Metode Eritema

Formula	Perlakuan	Skor eritema				
		T6	T12	T24	T48	T72
Kontrol negatif	1	1	2	4	4	3
	2	3	3	3	2	2
	3	2	3	3	4	4
	4	3	3	4	4	3
	5	2	2	3	4	3
	Rata-rata	2,2	2,6	3,4	3,6	3
	SD	0,837	0,548	0,548	0,894	0,707
F1	1	3	2	3	4	3
	2	1	3	4	4	3
	3	1	2	3	3	2
	4	2	3	3	2	2
	5	1	2	4	3	2
	Rata-rata	1,6	2,4	3,4	3,2	2,4
	SD	0,894	0,548	0,548	0,837	0,548
F2	1	2	2	3	2	2
	2	1	2	3	4	3
	3	1	2	4	3	2
	4	2	3	4	2	1
	5	1	3	3	3	3
	Rata-rata	1,4	2,4	3,4	2,8	2,2
	SD	0,548	0,548	0,548	0,837	0,837
F3	1	2	3	3	2	1
	2	1	2	1	1	0
	3	1	2	2	1	1
	4	1	1	3	3	2
	5	1	3	4	3	2
	Rata-rata	1,2	2,2	2,6	2	1,2
	SD	0,447	0,837	1,140	1,000	0,837
Kontrol positif	1	2	3	2	2	1
	2	2	3	3	2	0
	3	1	1	2	2	1
	4	1	2	2	1	0
	5	2	3	2	1	1
	Rata-rata	1,6	2,4	2,2	1,6	0,6
	SD	0,548	0,894	0,447	0,548	0,548

Hasil Statistika SPSS Metode Eritema Shapiro-Wilk

Tests of Normality							
	kelompok	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	perlakuan	Statistic	df	Sig.	Statistic	df	Sig.
mean skor eritema	kontrol negatif	,179	5	,200*	,962	5	,823
	formula 1	,209	5	,200*	,928	5	,584
	formula 2	,173	5	,200*	,991	5	,984
	formula 3	,248	5	,200*	,885	5	,332
	kontrol positif	,255	5	,200*	,914	5	,492

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

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

mean skor eritema

Levene Statistic	df1	df2	Sig.
,066	4	20	,991

ANOVA

mean skor eritema

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5,706	4	1,426	3,134	,037
Within Groups	9,104	20	,455		
Total	14,810	24			

Multiple Comparisons

Dependent Variable: mean skor eritema

	(I) kelompok perlakuan	(J) kelompok perlakuan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	kontrol negatif	formula 1	,360	,427	,914	-,92	1,64
		formula 2	,520	,427	,741	-,76	1,80
		formula 3	1,120	,427	,103	-,16	2,40
		kontrol positif	1,280*	,427	,049	,00	2,56
		kontrol negatif	-,360	,427	,914	-1,64	,92
	formula 1	formula 2	,160	,427	,995	-1,12	1,44
		formula 3	,760	,427	,411	-,52	2,04
		kontrol positif	,920	,427	,236	-,36	2,20
		kontrol negatif	-,520	,427	,741	-1,80	,76
	formula 2	formula 1	-,160	,427	,995	-1,44	1,12
		formula 3	,600	,427	,631	-,68	1,88
		kontrol positif	,760	,427	,411	-,52	2,04
		kontrol negatif	-1,120	,427	,103	-2,40	,16
	formula 3	formula 1	-,760	,427	,411	-2,04	,52
		formula 2	-,600	,427	,631	-1,88	,68
		kontrol positif	,160	,427	,995	-1,12	1,44
		kontrol negatif	-1,280*	,427	,049	-2,56	,00
	kontrol positif	formula 1	-,920	,427	,236	-2,20	,36
		formula 2	-,760	,427	,411	-2,04	,52
		formula 3	-,160	,427	,995	-1,44	1,12
	kontrol negatif	formula 1	,360	,427	1,000	-,99	1,71
		formula 2	,520	,427	1,000	-,83	1,87
		formula 3	1,120	,427	,162	-,23	2,47
		kontrol positif	1,280	,427	,071	-,07	2,63
		kontrol negatif	-,360	,427	1,000	-1,71	,99
Bonferroni	formula 1	formula 2	,160	,427	1,000	-1,19	1,51
		formula 3	,760	,427	,901	-,59	2,11
		kontrol positif	,920	,427	,434	-,43	2,27
		kontrol negatif	-,520	,427	1,000	-1,87	,83
	formula 2	formula 1	-,160	,427	1,000	-1,51	1,19
		formula 3	,600	,427	1,000	-,75	1,95
		kontrol positif	,760	,427	,901	-,59	2,11
		kontrol negatif	-1,120	,427	,162	-2,47	,23
	formula 3	formula 1	-,760	,427	,901	-2,11	,59
		formula 2	-,600	,427	1,000	-1,95	,75
		kontrol positif	,160	,427	1,000	-1,19	1,51
		kontrol negatif	-1,280	,427	,071	-2,63	,07
	kontrol positif	formula 1	-,920	,427	,434	-2,27	,43
		formula 2	-,760	,427	,901	-2,11	,59
		formula 3	-,160	,427	1,000	-1,51	1,19

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

Post Hoc Tukey-Bonferroni

mean skor eritema				
	kelompok perlakuan	N	Subset for alpha = 0.05	
			1	2
Tukey HSD ^a	kontrol positif	5	1,68	
	formula 3	5	1,84	1,84
	formula 2	5	2,44	2,44
	formula 1	5	2,60	2,60
	kontrol negatif	5		2,96
	Sig.		,236	,103

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5,000.