BAB V

KESIMPULAN DAN SARAN

A. Kesimpulan

Berdasarkan hasil pengamatan dapat disimpulkan bahwa:

Pertama, ditemukan daerah komposisi optimum krim sesuai dengan sifat yang dikehendaki yaitu polisorbat 80 sebesar 4,635 % dan sorbitan 80 sebesar 2,365 %. Pada prediksi menggunakan program *Design Expert* didapat sifat viskositas 240,323 dPas, daya sebar 3,96 cm, pergeseran viskositas 30,85%.

Kedua, krim lendir bekicot mempunyai aktivitas sebagai antibakteri terhadap *Stapylococcus aureus* ATCC 25932 menggunakan metode difusi. Rata-rata luas daerah hambatnya yaitu formula 1 (2,4 cm), formula 2 (2,6 cm), formula 3 (2,6 cm) dan formula optimum (2,7 cm).

B. Saran

Perlu dilakukan penelitian lebih lanjut, pertama perlu dilakukan penelitian dengan menggunakan emulgator yang lain.

Kedua, perlu dilakukan optimasi penelitian dengan menggunakan bentuk sediaan yang lainnya.

Ketiga, perlu dilakukan penelitian lebih lanjut krim lendir bekicot secara in vivo terhadap kelinci sebagai antibakteri.

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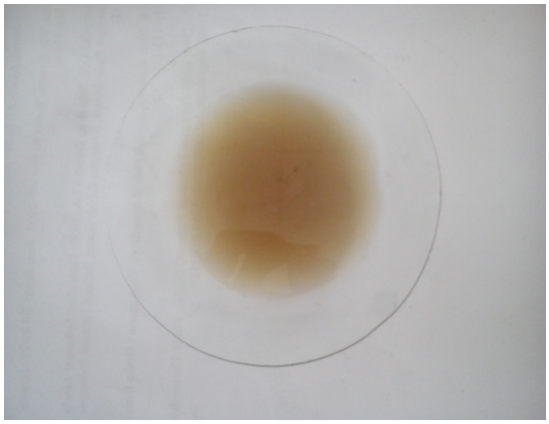
Lampiran 1. Gambar bekicot dan cara pengambilan lendir

Gambar 1. Bekicot (*Achatina fulica* Ferr)

Gambar 2. Pengambilan lendir bekicot



Gambar 3. Lendir bekicot

Lampiran 2. Gambar alat uji dan hasil krim lendir bekicot

Gambar 4. Alat uji daya sebar

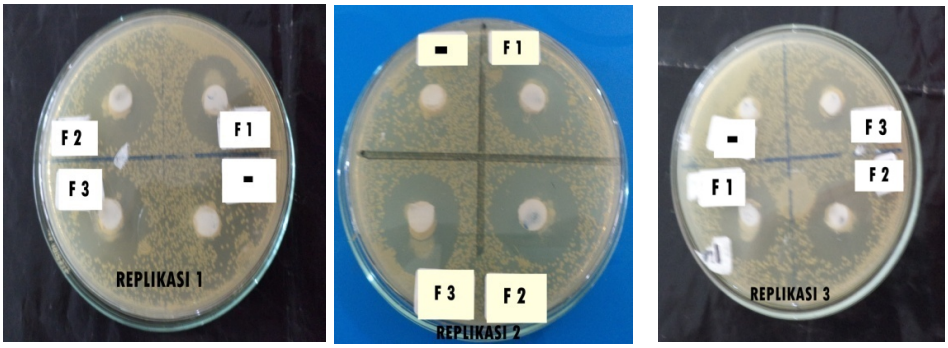
Gambar 5. Alat uji viskositas

Gambar 6. Hasil krim lendir bekicot

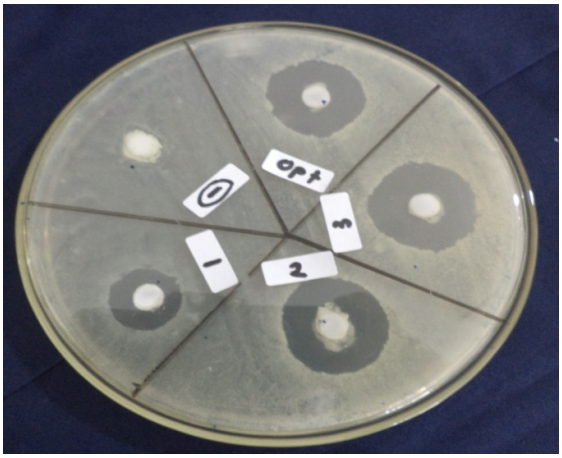
di + metilen blue **di + pelarut air**

Gambar 7. Uji tipe krim

Lampiran 3. Hasil uji daya hambat antibakteri



Gambar 8. Hasil uji daya hambat antibakteri krim lendir bekicot



Gambar 9. Daya uji hambat antibakteri formula krim dan formula optimum

Lampiran 4. Data pengujian Viskositas krim lendir bekicot

Waktu pengamatan	Viskositas (dPas)								
	Formula I			Formula II			Formula III		
	1	2	3	1	2	3	1	2	3
Hari ke 2	180	160	200	180	195	195	150	280	270
Minggu 1	150	150	160	150	200	200	260	260	280
Minggu 2	160	160	150	180	180	195	280	250	290
Minggu 3	160	150	125	160	170	180	210	210	180
Minggu 4	100	120	120	150	150	195	220	250	230

Rata-rata ± SD dan uji viskositas

Pemeriksaan waktu	Viskositas (dPas ± SD)		
	Formula I	Formula II	Formula III
Hari ke 2	180 ± 20	190 ± 8,66	266,7 ± 15,28
Minggu 1	153,43 ± 5,77	183,34 ± 28,23	266,67 ± 11,55
Minggu 2	156,67 ± 5,77	185 ± 8,66	273,33 ± 20,82
Minggu 3	145 ± 18,03	170 ± 10	200 ± 17,32
Minggu 4	113,33 ± 11,55	165 ± 25,98	233,33 ± 15,27

Lampiran 5. Data pengujian Daya Sebar krim lendir bekicot

2.1. Pengujian daya sebar hari kedua

Formula	Bobot	Daya sebar (cm)											
		Replikasi 1				Replikasi 2				Replikasi 3			
		1	2	3	4	1	2	3	4	1	2	3	4
Formula I	54,94	3,0	2,9	2,9	3,1	3,1	3,3	3,4	3,4	2,9	2,9	3,0	3,2
	104,94	3,3	3,2	3,2	3,4	3,8	3,8	3,7	3,8	3,3	3,2	3,2	3,4
Formula II	54,94	3,8	3,8	3,9	4,0	3,7	4,0	4,2	4,3	4,0	3,4	3,8	4,1
	104,94	4,4	4,3	4,4	4,7	4,8	4,7	4,6	4,9	4,6	3,8	4,6	5,0
Formula III	54,94	3,3	3,5	3,7	3,7	3,5	3,3	3,5	3,7	3,4	3,1	3,4	3,6
	104,94	4,0	3,9	4,2	4,2	4,4	4,4	3,8	4,2	4,1	3,6	4,0	4,2

2.2. Pengujian daya sebar minggu 1

Formula	Bobot	Daya sebar (cm)											
		Replikasi 1				Replikasi 2				Replikasi 3			
		1	2	3	4	1	2	3	4	1	2	3	4
Formula I	54,94	2,9	2,9	3,1	3,2	2,8	2,9	3,1	3	2,9	2,7	2,9	3
	104,94	3,6	3,5	3,6	3,5	3,5	3,4	3,6	3,6	3,5	3	3,4	3,4
Formula II	54,94	3,4	3,8	3,9	3,8	3,2	3,8	3,8	3,8	3,9	3,6	4	4,1
	104,94	4,5	4,7	4,7	4,5	4,7	4,7	4,5	4,5	4,7	4,4	4,7	4,7
Formula III	54,94	3,1	3,4	3,4	3,5	3,2	3,1	3,2	3,2	3,5	3,4	2,9	3,1
	104,94	3,7	4	3,8	4	3,7	3,8	3,7	3,8	4,1	3,8	3,6	3,7

2.3. Pengujian daya sebar minggu 2

Formula	Bobot	Daya sebar (cm)											
		Replikasi 1				Replikasi 2				Replikasi 3			
		1	2	3	4	1	2	3	4	1	2	3	4
Formula I	54,94	2,9	3,2	3,2	3,2	2,6	2,7	2,9	2,83	3	2,8	2,8	2,8
	104,94	3,2	3,3	3,5	3,6	3,1	3	3,2	3,1	3,2	3	3,1	3,1
Formula II	54,94	3,3	3,5	3,5	3,5	3,7	3,7	3,9	4,1	3,1	3,6	3,3	3,7
	104,94	3,9	4,1	3,9	4,1	4,5	4,2	4,6	4,8	4,3	4,4	4	4,3
Formula III	54,94	3,5	3,4	3,5	3,5	3,3	3,5	3,7	3,2	3,7	3,5	3,4	3,7
	104,94	4,0	3,5	4	3,5	3,5	3,7	4	3,8	3,8	3,6	3,7	4

2.4. Pengujian daya sebar minggu 3

Formula	Bobot	Daya sebar (cm)											
		Replikasi 1				Replikasi 2				Replikasi 3			
		1	2	3	4	1	2	3	4	1	2	3	4
Formula I	54,94	3	3,4	3,4	3,1	2,9	2,8	3,1	3,1	2,9	3,4	3,2	3,5
	104,94	3,6	3,6	3,6	3,2	3,5	3,3	3,3	3,4	3,5	3,6	3,3	3,5
Formula II	54,94	3,9	3,7	3,6	3,7	3,8	3,3	3,9	4,2	3,7	3,8	3,9	3,7
	104,94	4,2	4,2	4,2	4	4,5	4	4,2	4	4,3	4,4	4,1	4,0
Formula III	54,94	4,1	3,5	3,8	3,9	4,2	3,5	4,1	4,1	4,2	3,9	3,5	3,4
	104,94	4,9	4,5	4,9	5	5,1	4,2	4,6	4,8	5,1	4,5	4,4	4,8

2.5. Pengujian daya sebar minggu 4

Formula	Bobot	Daya sebar (cm)											
		Replikasi 1				Replikasi 2				Replikasi 3			
		1	2	3	4	1	2	3	4	1	2	3	4
Formula I	54,94	2,8	2,9	2,9	3	3,1	3,	3,1	3,1	3	3,4	3,5	3,4
	104,94	3,4	3,3	3,6	3,6	3,8	3,6	3,6	3,5	3,5	3,6	4	4,4
Formula II	54,94	3,5	3,7	3,7	3,7	3,6	3,7	3,7	3,8	3,6	3,6	3,5	3,9
	104,94	4,2	4,3	4,3	4,1	4,2	4,4	4,2	4,4	4,2	4,2	4,2	4,2
Formula III	54,94	3,9	3,9	3,3	3,7	3,8	3,6	3,9	4,0	3,8	3,9	4,1	3,5
	104,94	4,3	4,4	4,2	3,9	4,2	4,1	4,3	4,4	4,3	4,4	4,4	4,1

Lampiran 6. Data hasil uji pergeseran viskositas krim lendir bekicot

Replikasi	Viskositas (dPas)		
	Formula I	Formula II	Formula III
Replikasi 1	80	30	30
Replikasi 2	40	45	30
Replikasi 3	80	0	40

Lampiran 7. Data uji antibakteri

Formula	Konsentrasi lendir	Daerah zona hambat (cm)			Rata-rata
		Replikasi			
		1	2	3	
Formula I	20%	2,5	2,4	2,4	2,433
Formula II	20%	2,6	2,7	2,5	2,6
Formula III	20%	2,7	2,5	2,6	2,6
Formula optimum	20%	2,6	2,8	2,7	2,7
Kontrol negatif	-	-	-	-	-

Lampiran 8. Data hasil kriteria respon formula optimum

Respon Parameter	Kriteria Uji
Viskositas (dPas)	Minimum
Daya sebar (cm)	Maksimum
Pergeseran viskositas (dPas)	Minimum
Antibakteri (cm)	Maksimum

Lampiran 9. Statistik stabilitas krim lendir bekicot

A. Stabilitas krim (Viskositas)

1. Formula I

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
viskositas (dPas)	6	146,67	39,328	100	200

One-Sample Kolmogorov-Smirnov Test

		viskositas (dPas)
N		6
Normal Parameters[a,b]	Mean	146,67
	Std. Deviation	39,328
Most Extreme Differences	Absolute	,251
	Positive	,251
	Negative	-,135
Kolmogorov-Smirnov Z		,615
Asymp. Sig. (2-tailed)		,844

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	formula I	N	Mean	Std. Deviation	Std. Error Mean
viskositas (dPas)	hari ke 2	3	180,00	20,000	11,547
	minggu ke 4	3	113,33	11,547	6,667

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
viskositas (dPas)	Equal variances assumed	,400	,561	5,000	4	,007	66,667	13,333	29,647	103,686
	Equal variances not assumed			5,000	3,200	,013	66,667	13,333	25,696	107,638

2. Formula II

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
viskositas krim	6	177,50	22,079	150	195

One-Sample Kolmogorov-Smirnov Test

		viskositas krim
N		6
Normal Parameters[a,b]	Mean	177,50
	Std. Deviation	22,079
Most Extreme Differences	Absolute	,286
	Positive	,227
	Negative	-,286
Kolmogorov-Smirnov Z		,701
Asymp. Sig. (2-tailed)		,710

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	waktu pengamatan	N	Mean	Std. Deviation	Std. Error Mean
viskositas krim	hari ke 2	3	190,00	8,660	5,000
	minggu ke 4	3	165,00	25,981	15,000

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
viskositas krim	Equal variances assumed	6,400	,065	1,581	4	,189	25,000	15,811	-18,899	68,899
	Equal variances not assumed			1,581	2,439	,232	25,000	15,811	-32,544	82,544

3. Formula III

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
viskositas (dPas)	6	250,00	22,804	220	280

One-Sample Kolmogorov-Smirnov Test

		viskositas (dPas)
N		6
Normal Parameters[a,b]	Mean	250,00
	Std. Deviation	22,804
Most Extreme Differences	Absolute	,167
	Positive	,167
	Negative	-,167
Kolmogorov-Smirnov Z		,408
Asymp. Sig. (2-tailed)		,996

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	formula III	N	Mean	Std. Deviation	Std. Error Mean
viskositas (dPas)	hari ke 2	3	266,67	15,275	8,819
	minggu ke 4	3	233,33	15,275	8,819

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
viskositas (dPas)	Equal variances assumed	,000	1,000	2,673	4	,056	33,333	12,472	-1,295	67,962
	Equal variances not assumed			2,673	4,000	,056	33,333	12,472	-1,295	67,962

B. Stabilitas krim (daya sebar)

1. Formula I

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
daya sebar (cm)	6	3,5467	,25033	3,27	3,87

One-Sample Kolmogorov-Smirnov Test

		daya sebar (cm)
N		6
Normal Parameters[a,b]	Mean	3,5467
	Std. Deviation	,25033
Most Extreme Differences	Absolute	,190
	Positive	,190
	Negative	-,147
Kolmogorov-Smirnov Z		,465
Asymp. Sig. (2-tailed)		,982

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	formula I	N	Mean	Std. Deviation	Std. Error Mean
daya sebar (cm)	hari ke 2	3	3,4400	,28583	,16503
	minggu ke 4	3	3,6533	,20207	,11667

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
daya sebar (cm)	Equal variances assumed	,919	,392	-1,056	4	,351	-,21333	,20210	-,77445	,34779
	Equal variances not assumed			-1,056	3,600	,357	-,21333	,20210	-,79995	,37328

2. Formula II

NPar Test

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
daya sebar (cm)	6	4,3517	,12937	4,20	4,50

One-Sample Kolmogorov-Smirnov Test

		daya sebar (cm)
N		6
Normal Parameters[a,b]	Mean	4,3517
	Std. Deviation	,12937
Most Extreme Differences	Absolute	,201
	Positive	,179
	Negative	-,201
Kolmogorov-Smirnov Z		,493
Asymp. Sig. (2-tailed)		,968

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	formula II	N	Mean	Std. Deviation	Std. Error Mean
daya sebar (cm)	hari ke 2	3	4,4633	,04041	,02333
	minggu ke 4	3	4,2400	,05292	,03055

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
daya sebar (cm)	Equal variances assumed	,474	,529	5,810	4	,004	,22333	,03844	,11660	,33007
	Equal variances not assumed			5,810	3,741	,005	,22333	,03844	,11362	,33304

3. Formula III

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
daya sebar (cm)	6	4,1650	,12243	3,97	4,30

One-Sample Kolmogorov-Smirnov Test

		daya sebar (cm)
N		6
Normal Parameters[a,b]	Mean	4,1650
	Std. Deviation	,12243
Most Extreme Differences	Absolute	,279
	Positive	,135
	Negative	-,279
Kolmogorov-Smirnov Z		,684
Asymp. Sig. (2-tailed)		,738

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	formula III	N	Mean	Std. Deviation	Std. Error Mean
daya sebar (cm)	hari ke 2	3	4,0800	,11533	,06658
	minggu ke 4	3	4,2500	,05000	,02887

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
daya sebar (cm)	Equal variances assumed	1,441	,296	-2,343	4	,079	-,17000	,07257	-,37149	,03149
	Equal variances not assumed			-2,343	2,726	,110	-,17000	,07257	-,41465	,07465

Lampiran 10. Statistik percobaan vs prediksi

1. Viskositas

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
viskositas (dPas)	6	230,16150	15,617532	200,000	240,323

One-Sample Kolmogorov-Smirnov Test

		viskositas (dPas)
N		6
Normal Parameters[a,b]	Mean	230,16150
	Std. Deviation	15,617532
Most Extreme Differences	Absolute	,329
	Positive	,258
	Negative	-,329
Kolmogorov-Smirnov Z		,806
Asymp. Sig. (2-tailed)		,534

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	formula krim	N	Mean	Std. Deviation	Std. Error Mean
viskositas (dPas)	Prediksi	3	240,32300	,000000	,000000
	Percobaan	3	220,00000	17,320508	10,000000

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
viskositas (dPas)	Equal variances assumed	16,000	,016	2,032	4	,112	20,323000	10,000000	-7,441451	48,087451
	Equal variances not assumed			2,032	2,000	,179	20,323000	10,000000	-22,703527	63,349527

2. Daya Sebar

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
daya sebar (cm)	6	4,03633	,155169	3,956	4,350

One-Sample Kolmogorov-Smirnov Test

		daya sebar (cm)
N		6
Normal Parameters[a,b]	Mean	4,03633
	Std. Deviation	,155169
Most Extreme Differences	Absolute	,426
	Positive	,426
	Negative	-,302
Kolmogorov-Smirnov Z		1,043
Asymp. Sig. (2-tailed)		,227

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	formula krim	N	Mean	Std. Deviation	Std. Error Mean
daya sebar (cm)	Prediksi	3	3,95600	,000000	,000000
	Percobaan	3	4,11667	,202073	,116667

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
daya sebar (cm)	Equal variances assumed	16,000	,016	-1,377	4	,241	-,160667	,116667	-,484585	,163252
	Equal variances not assumed			-1,377	2,000	,302	-,160667	,116667	-,664643	,343091

3. Antibakteri

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
antibakteri (cm)	6	2,6450	,08735	2,59	2,80

One-Sample Kolmogorov-Smirnov Test

		antibakteri (cm)
N		6
Normal Parameters[a,b]	Mean	2,6450
	Std. Deviation	,08735
Most Extreme Differences	Absolute	,363
	Positive	,363
	Negative	-,264
Kolmogorov-Smirnov Z		,890
Asymp. Sig. (2-tailed)		,406

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	formula krim	N	Mean	Std. Deviation	Std. Error Mean
antibakteri (cm)	Prediksi	3	2,5900	,00000	,00000
	Percobaan	3	2,7000	,10000	,05774

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
antibakteri (cm)	Equal variances assumed	4,000	,116	-1,905	4	,129	-,11000	,05774	-,27030	,05030
	Equal variances not assumed			-1,905	2,000	,197	-,11000	,05774	-,35841	,13841

4. Pergeseran viskositas

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
pergeseran viskositas (%)	6	35,4250	12,04644	20,00	50,00

One-Sample Kolmogorov-Smirnov Test

		pergeseran viskositas (%)
N		6
Normal Parameters[a,b]	Mean	35,4250
	Std. Deviation	12,04644
Most Extreme Differences	Absolute	,315
	Positive	,315
	Negative	-,220
Kolmogorov-Smirnov Z		,771
Asymp. Sig. (2-tailed)		,593

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

	formula krim	N	Mean	Std. Deviation	Std. Error Mean
pergeseran viskositas (%)	prediksi	3	30,8500	,00000	,00000
	percobaan	3	40,0000	17,32051	10,00000

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
pergeseran viskositas (%)	Equal variances assumed	16,000	,016	-,915	4	,412	-9,15000	10,00000	-36,91445	18,61445
	Equal variances not assumed			-,915	2,000	,457	-9,15000	10,00000	-52,17653	33,87653

Lampiran 11. Uji statistik kolmogorov-Smirnov dan analisis anova satu jalan formula krim lendir bekicot

1. **Viskositas**

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
viskositas (dPas)	9	212,22	43,165	160	280

One-Sample Kolmogorov-Smirnov Test

		viskositas (dPas)
N		9
Normal Parameters[a,b]	Mean	212,22
	Std. Deviation	43,165
Most Extreme Differences	Absolute	,278
	Positive	,278
	Negative	-,143
Kolmogorov-Smirnov Z		,834
Asymp. Sig. (2-tailed)		,489

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

viskositas (dPas)

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
formula 1	3	180,00	20,000	11,547	130,32	229,68	160	200
formula 2	3	190,00	8,660	5,000	168,49	211,51	180	195
formula 3	3	266,67	15,275	8,819	228,72	304,61	250	280
Total	9	212,22	43,165	14,388	179,04	245,40	160	280

Test of Homogeneity of Variances

viskositas (dPas)

Levene Statistic	df1	df2	Sig.
,546	2	6	,605

ANOVA

viskositas (dPas)

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	13488,889	2	6744,444	28,565	,001
Within Groups	1416,667	6	236,111		
Total	14905,556	8			

Multiple Comparisons

viskositas (dPas)

Tukey HSD

(I) formula krim	(J) formula krim	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
formula 1	formula 2	-10,000	12,546	,718	-48,50	28,50
	formula 3	-86,667*	12,546	,001	-125,16	-48,17
formula 2	formula 1	10,000	12,546	,718	-28,50	48,50
	formula 3	-76,667*	12,546	,002	-115,16	-38,17
formula 3	formula 1	86,667*	12,546	,001	48,17	125,16
	formula 2	76,667*	12,546	,002	38,17	115,16

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

2. Daya sebar

NPar Test

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
daya sebar (cm)	9	4,0256	,51636	3,27	4,75

One-Sample Kolmogorov-Smirnov Test

		daya sebar (cm)
N		9
Normal Parameters[a,b]	Mean	4,0256
	Std. Deviation	,51636
Most Extreme Differences	Absolute	,148
	Positive	,148
	Negative	-,124
Kolmogorov-Smirnov Z		,444
Asymp. Sig. (2-tailed)		,989

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

daya sebar (cm)

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
formula 1	3	3,4400	,28583	,16503	2,7300	4,1500	3,27	3,77
formula 2	3	4,5567	,17214	,09939	4,1290	4,9843	4,42	4,75
formula 3	3	4,0800	,11533	,06658	3,7935	4,3665	3,97	4,20
Total	9	4,0256	,51636	,17212	3,6286	4,4225	3,27	4,75

Test of Homogeneity of Variances

daya sebar (cm)

Levene Statistic	df1	df2	Sig.
2,594	2	6	,154

ANOVA

daya sebar (cm)

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1,884	2	,942	22,672	,002
Within Groups	,249	6	,042		
Total	2,133	8			

Multiple Comparisons

daya sebar (cm)

Tukey HSD

(I) formula krim	(J) formula krim	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
formula 1	formula 2	-1,11667*	,16642	,001	-1,6273	-,6060
	formula 3	-,64000*	,16642	,020	-1,1506	-,1294
formula 2	formula 1	1,11667*	,16642	,001	,6060	1,6273
	formula 3	,47667	,16642	,064	-,0340	,9873
formula 3	formula 1	,64000*	,16642	,020	,1294	1,1506
	formula 2	-,47667	,16642	,064	-,9873	,0340

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

3. Pergeseran viskositas

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
pergeseran viskositas (dPas)	9	41,67	25,249	0	80

One-Sample Kolmogorov-Smirnov Test

		pergeseran viskositas (dPas)
N		9
Normal Parameters[a,b]	Mean	41,67
	Std. Deviation	25,249
Most Extreme Differences	Absolute	,225
	Positive	,225
	Negative	-,211
Kolmogorov-Smirnov Z		,676
Asymp. Sig. (2-tailed)		,751

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

pergeseran viskositas (dPas)

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
formula 1	3	66,67	23,094	13,333	9,30	124,04	40	80
formula 2	3	25,00	22,913	13,229	-31,92	81,92	0	45
formula 3	3	33,33	5,774	3,333	18,99	47,68	30	40
Total	9	41,67	25,249	8,416	22,26	61,07	0	80

Test of Homogeneity of Variances

pergeseran viskositas (dPas)

Levene Statistic	df1	df2	Sig.
2,876	2	6	,133

ANOVA

pergeseran viskositas (dPas)

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2916,667	2	1458,333	4,008	,078
Within Groups	2183,333	6	363,889		
Total	5100,000	8			

Multiple Comparisons

pergeseran viskositas (dPas)

Tukey HSD

(I) formula krim	(J) formula krim	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
formula 1	formula 2	41,667	15,575	,082	-6,12	89,46
	formula 3	33,333	15,575	,162	-14,46	81,12
formula 2	formula 1	-41,667	15,575	,082	-89,46	6,12
	formula 3	-8,333	15,575	,858	-56,12	39,46
formula 3	formula 1	-33,333	15,575	,162	-81,12	14,46
	formula 2	8,333	15,575	,858	-39,46	56,12

4. Antibakteri

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
antibakteri (cm)	9	2,544	,1130	2,4	2,7

One-Sample Kolmogorov-Smirnov Test

		antibakteri (cm)
N		9
Normal Parameters[a,b]	Mean	2,544
	Std. Deviation	,1130
Most Extreme Differences	Absolute	,208
	Positive	,208
	Negative	-,138
Kolmogorov-Smirnov Z		,625
Asymp. Sig. (2-tailed)		,829

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

antibakteri (cm)

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
formula 1	3	2,433	,0577	,0333	2,290	2,577	2,4	2,5
formula 2	3	2,600	,1000	,0577	2,352	2,848	2,5	2,7
formula 3	3	2,600	,1000	,0577	2,352	2,848	2,5	2,7
Total	9	2,544	,1130	,0377	2,458	2,631	2,4	2,7

Test of Homogeneity of Variances

antibakteri (cm)

Levene Statistic	df1	df2	Sig.
,211	2	6	,816

ANOVA

antibakteri (cm)

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	,056	2	,028	3,571	,095
Within Groups	,047	6	,008		
Total	,102	8			

Multiple Comparisons

antibakteri (cm)

Tukey HSD

(I) formula krim	(J) formula krim	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
formula 1	formula 2	-,1667	,0720	,129	-,388	,054
	formula 3	-,1667	,0720	,129	-,388	,054
formula 2	formula 1	,1667	,0720	,129	-,054	,388
	formula 3	,0000	,0720	1,000	-,221	,221
formula 3	formula 1	,1667	,0720	,129	-,054	,388
	formula 2	,0000	,0720	1,000	-,221	,221

Lampiran 12. Data hasil *Desain Expert* parameter uji krim lendir bekicot

Response 1 viskositas

ANOVA for Linear Mixture Model

***** Mixture Component Coding is L_Pseudo. *****

Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	11266.67	1	11266.67	21.67	0.0023	significant
Linear Mixture	*11266.67*	*1*	*11266.67*	*21.67*	*0.0023*	
Residual	3638.89	7	519.84			
Lack of Fit	*2222.22*	*1*	*2222.22*	*9.41*	*0.0220*	*significant*
Pure Error	*1416.67*	*6*	*236.11*			
Cor Total	14905.56	8				

Std. Dev.	22.80	R-Squared	0.7559
Mean	212.22	Adj R-Squared	0.7210
C.V. %	10.74	Pred R-Squared	0.6033
PRESS	5913.36	Adeq Precision	8.063

Component	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
A-polisorbat 80	255.56	1	12.02	227.14	283.97	1.04
B-sorbitan 80	168.89	1	12.02	140.47	197.30	1.04

Base Point in Terms of Pseudo Components:

+0.50000 +0.50000

Constraint Region Bounded Component Effects for Piepel Direction

Component	Gradient in Reals	Component Effect	df	Gradient Std Error	Approx t for H_0 Gradient=0	Prob > |t|	Gradient in Pseudo
A-polisorbat 80	173.33	86.67	1	37.23	4.66	0.0023	86.67
B-sorbitan 80	-173.33	-86.67	1	37.23	-4.66	0.0023	-86.67

Base Point in Terms of Real Components:

+0.50000 +0.50000

Constraint Region Bounded Component Effects for Cox Direction

Component	Gradient Component in Reals	Effect	df	Gradient Std Error	Approx t for H0 Gradient=0	Prob > |t|
A-polisorbat 80	173.33	86.67	1	37.23	4.66	0.0023
B-sorbitan 80	-173.33	-86.67	1	37.23	-4.66	0.0023

Final Equation in Terms of L_Pseudo Components:

viskositas =
+255.56 * A
+168.89 * B

Final Equation in Terms of Real Components:

viskositas =
+298.88889 * polisorbat 80
+125.55556 * sorbitan 80

Final Equation in Terms of Actual Components:

viskositas =
+42.69841 * polisorbat 80
+17.93651 * sorbitan 80

Response 2 daya sebar

ANOVA for Linear Mixture Model

***** Mixture Component Coding is L_Pseudo. *****

Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	0.46	1	0.46	2.97	0.1283	not significant
Linear Mixture	*0.46*	*1*	*0.46*	*2.97*	*0.1283*	
Residual	1.08	7	0.15			
Lack of Fit	*1.04*	*1*	*1.04*	*157.35*	*< 0.0001*	*significant*
Pure Error	*0.040*	*6*	*6.641E-003*			
Cor Total	1.55	8				

Std. Dev.	0.39	R-Squared	0.2982
Mean	3.78	Adj R-Squared	0.1979
C.V. %	10.42	Pred R-Squared	-0.0496
PRESS	1.62	Adeq Precision	2.987

Component	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
A-polisorbat 80	4.05	1	0.21	3.56	4.54	1.04
B-sorbitan 80	3.50	1	0.21	3.01	3.99	1.04

Base Point in Terms of Pseudo Components:

+0.50000 +0.50000

Constraint Region Bounded Component Effects for Piepel Direction

Component	Gradient in Reals	Component Effect	df	Gradient Std Error	Approx t for H Gradient=0	Prob > |t|	Gradient in Pseudo
A-polisorbat 80	1.11	0.55	1	0.64	1.72	0.1283	0.55
B-sorbitan 80	-1.11	-0.55	1	0.64	-1.72	0.1283	-0.55

Base Point in Terms of Real Components:

+0.50000 +0.50000

Constraint Region Bounded Component Effects for Cox Direction

Component	Gradient in Reals	Component Effect	df	Gradient Std Error	Approx t for H_0 Gradient=0	Prob > |t|
A-polisorbat 80	1.11	0.55	1	0.64	1.72	0.1283
B-sorbitan 80	-1.11	-0.55	1	0.64	-1.72	0.1283

Final Equation in Terms of L_Pseudo Components:

daya sebar =
+4.05 * A
+3.50 * B

Final Equation in Terms of Real Components:

daya sebar =
+4.33078 * polisorbat 80
+3.22211 * sorbitan 80

Final Equation in Terms of Actual Components:

daya sebar =
+0.61868 * polisorbat 80
+0.46030 * sorbitan 80

Response 3 pergeseran viskositas

ANOVA for Linear Mixture Model

***** Mixture Component Coding is L_Pseudo. *****

Analysis of variance table [Partial sum of squares - Type III]

Source	Mean Squares	df	F Square	p-value Value	Prob > F	
Model	1666.67	1	1666.67	3.40	0.1078	not significant
Linear Mixture	*1666.67*	*1*	*1666.67*	*3.40*	*0.1078*	
Residual	3433.33	7	490.48			
Lack of Fit	*1250.00*	*1*	*1250.00*	*3.44*	*0.1133*	*not significant*
Pure Error	*2183.33*	*6*	*363.89*			
Cor Total	5100.00	8				

Std. Dev.	22.15	R-Squared	0.3268
Mean	41.67	Adj R-Squared	0.2306
C.V. %	53.15	Pred R-Squared	-0.0500
PRESS	5355.19	Adeq Precision	3.193

Component	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
A-polisorbat 80	25.00	1	11.67	-2.60	52.60	1.04
B-sorbitan 80	58.33	1	11.67	30.73	85.93	1.04

Base Point in Terms of Pseudo Components:

+0.50000 +0.50000

Constraint Region Bounded Component Effects for Piepel Direction

Component	Gradient in Reals	Componen Effect	df	Gradient Std Error	Approx t for H0 Gradient=0	Prob > |t|	Gradient in Pseudo
A-polisorbat 80	-66.67	-33.33	1	36.17	-1.84	0.1078	-33.33
B-sorbitan 80	66.67	33.33	1	36.17	1.84	0.1078	33.33

Base Point in Terms of Real Components:

+0.50000 +0.50000

Constraint Region Bounded Component Effects for Cox Direction

Component	Gradient in Reals	Component Effect	df	Gradient Std Error	Approx t for H0 Gradient=0	Prob > |t|
A-polisorbat 80	-66.67	-33.33	1	36.17	-1.84	0.1078
B-sorbitan 80	66.67	33.33	1	36.17	1.84	0.1078

Final Equation in Terms of L_Pseudo Components:

pergeseran viskositas =
+25.00 * A
+58.33 * B

Final Equation in Terms of Real Components:

pergeseran viskositas =
+8.33333 * polisorbat 80
+75.00000 * sorbitan 80

Final Equation in Terms of Actual Components:

pergeseran viskositas =
+1.19048 * polisorbat 80
+10.71429 * sorbitan 80

Response 4 antibakteri

ANOVA for Linear Mixture Model

***** Mixture Component Coding is L_Pseudo. *****

Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	0.042	1	0.042	4.82	0.0642	not significant
Linear Mixture	*0.042*	*1*	*0.042*	*4.82*	*0.0642*	
Residual	0.061	7	8.651E-003			
Lack of Fit	*0.014*	*1*	*0.014*	*1.79*	*0.2299*	*not significant*
Pure Error	*0.047*	*6*	*7.778E-003*			
Cor Total	0.10	8				

Std. Dev.	0.093	R-Squared	0.4076
Mean	2.54	Adj R-Squared	0.3230
C.V. %	3.66	Pred R-Squared	0.0508
PRESS	0.097	Adeq Precision	3.801

Component	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
A-polisorbat 80	2.63	1	0.049	2.51	2.74	1.04
B-sorbitan 80	2.46	1	0.049	2.35	2.58	1.04

Base Point in Terms of Pseudo Components:

+0.50000 +0.50000

Constraint Region Bounded Component Effects for Piepel Direction

Component	Gradient in Reals	Component Effect	df	Gradient Std Error	Approx t for H0 Gradient=0	Prob > |t|	Gradient in Pseudo
A-polisorbat 80	0.33	0.17	1	0.15	2.19	0.0642	0.17
B-sorbitan 80	-0.33	-0.17	1	0.15	-2.19	0.0642	-0.17

Base Point in Terms of Real Components:

+0.50000 +0.50000

Constraint Region Bounded Component Effects for Cox Direction

Component	Gradient in Reals	Component Effect	df	Gradient Std Error	Approx t for H0 Gradient=0	Prob > |t|
A-polisorbat 80	0.33	0.17	1	0.15	2.19	0.0642
B-sorbitan 80	-0.33	-0.17	1	0.15	-2.19	0.0642

Final Equation in Terms of L_Pseudo Components:

antibakteri =
+2.63 * A
+2.46 * B

Final Equation in Terms of Real Components:

antibakteri =
+2.71111 * polisorbat 80
+2.37778 * sorbitan 80

Final Equation in Terms of Actual Components:

antibakteri =
+0.38730 * polisorbat 80
+0.33968 * sorbitan 80