BAB V

KESIMPULAN DAN SARAN

A. Kesimpulan

1. Minyak kelapa murni *(Virgin Coconut Oil)* dapat diformulasikan dalam bentuk sediaan losion pelembab *(moisturizer lotion)* dengan menggunakan *emulsifying agent* polysorbate 80 dan setil alkohol yang ditunjukkan dengan adanya komposisi optimum pada formula sediaan losion pelembab .

2. Kombinasi konsentrasi polysorbate 80 dan setil alkohol sebagai *emulsifying agent* berpengaruh terhadap pengujian organoleptis, pH, viskositas, daya sebar, daya lekat dan pengujian stabilitas losion pelembab *(moisturizer lotion)* minyak kelapa *(Virgin Coconut Oil)*

3. Formula I dengan konsentrasi polysorbate 80 sebesar 4 % dan setil alkohol sebesar 2% dapat menghasilkan mutu fisik dan stabilitas losion pelembab *(moisturizer lotion)* minyak kelapa *(Virgin Coconut Oil)* yang baik

B. Saran

Perlu dilakukan penelitian lebih lanjut tentang optimasi pembuatan losion pelembab *(moisturizer lotion)* minyak kelapa murni *(Virgin Coconut Oil)* dengan *emulsifying agent* polysorbate 80 dan setil alkohol.

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LAMPIRAN

Lampiran 1. *Certificate of Analysis* **Minyak Kelapa Murni**

    a. *Certificate of Analysis* **Minyak Kelapa Murni (***Virgin Coconut Oil)*

Certificate of Analysis

VIRGIN COCONUT OIL
(MM-L030A)

Batch Number	MM-290918-VCO
Manufacturing Date	September 29, 2018
Expired Date	September 29, 2020

Determination	Specification	Result
Physical & Chemical Determination		
Appearance	Clear Liquid free of foreign matter	Complies
Color	Colorless	Complies
Odor	Mild Coconut Smell	Complies
Specific Gravity	0.8000 - 0.9150	0.8352
Refraction Index	1.4400 - 1.4700	1.4586
Heavy Metal		
Arsenic	Max. 2 ppm	Complies
Lead	Max. 5 ppm	Complies
Microbiological Determination		
Total Bacterial Plate Count	10^2 cfu/g max	$< 10^2$ cfu/g
Mold & Yeast Count	10^2 cfu/g max	$< 10^2$ cfu/g
Coliform	Negative	Negative

Jakarta, October 01, 2018

Quality Control   **Quality Control Supervisor**

This information is believed to be accurate and intended for general guidance
It should not be construed as a guarantee of its suitability for a particular application

064-09-18-LBC Ext.C

b. Formula losion pelembab VCO

Bahan	Formula I	Formula II	Formula III	Formula IV
VCO	27,6%	27,6%	27,6%	27,6%
Polysorbate 80	4%	8%	2%	2%
Setil alkohol	2%	2%	4%	8%
Asam stearat	3 g	3 g	3 g	3 g
Nipagin	0,18 g	0,18 g	0,18 g	0,18 g
Nipasol	0,02 g	0,02 g	0,02 g	0,02 g
Gliserin	5 g	5 g	5 g	5 g
Minyak anggrek *(orchid essential oil)*	2 gtt	2 gtt	2 gtt	2 gtt
Aquadest	Ad 100 ml	Ad 100 ml	Ad 100 ml	Ad 100 ml

Ket : g = gram, gtt *(guttae)* = tetes

Hasil perhitungan formula losion pelembab VCO

Formula I

a. VCO 27,6 % $= \frac{27,6}{100} \times 100$ gram $= 27,6$ gram

b. Polysorbate 80 4% $= \frac{4}{100} \times 100$ gram $= 4$ gram

c. Setil alkohol 2% $= \frac{2}{100} \times 100$ gram $= 2$ gram

d. Asam stearat 3 gram $= 3$ gram

e. Nipagin 0,18 gram $= 0,18$ gram

f. Nipasol 0,02 gram $= 0,02$ gram

g. Gliserin 5 gram $= 5$ gram

h. Minyak anggrek 2 gtt $= 2$ tetes

i. Aquadest ad 100 ml $= 100$ ml $- (27,6 + 4 + 2 + 3 + 0,18 + 0,02 + 5)$

    $= 58, 2$ ml

Formula II

a. VCO 27,6% $= \frac{27,6}{100} \times 100$ gram $= 27,6$ gram

b. Polysorbate 80 8% $= \frac{8}{100} \times 100 = 8$ gram

c. Setil alkohol 2% $= \frac{2}{100} \times 100 = 2$ gram

d. Asam stearat 3 gram $= 3$ gram

e. Nipagin 0,18 gram $= 0,18$ gram

f. Nipasol 0,02 gram $= 0,02$ gram

g. Gliserin 5 gram $= 5$ gram

h. Minyak anggrek 2 gtt $= 2$ tetes

i. Aquadest ad 100 ml $= 100$ ml $- (27,6 + 8 + 2 + 3 + 0,18 +$

  $0,02 + 5)$ $= 54, 2$ ml

Formula III

a. VCO 27,6% $= \frac{27,6}{100} \times 100$ gram $= 27,6$ gram

b. Polysorbate 80 2% $= \frac{2}{100} \times 100$ $= 2$ gram

c. Setil alkohol 2% $= \frac{4}{100} \times 100$ $= 4$ gram

d. Asam stearat 3 gram $= 3$ gram

e. Nipagin 0,18 gram $= 0,18$ gram

f. Nipasol 0,02 gram $= 0,02$ gram

g. Gliserin 5 gram $= 5$ gram

h. Minyak anggrek 2 gtt $= 2$ tetes

i. Aquadest ad 100 ml $= 100$ ml $- (27,6 + 2 + 4 + 3 + 0,18 +$

  $0,02 + 5)$ $= 58, 2$ ml

Formula IV

a. VCO 27,6% $= \frac{27,6}{100} \times 100$ gram $= 27,6$ gram

b. Polysorbate 80 2% $= \frac{2}{100} \times 100 = 2$ gram

c. Setil alkohol 8% $= \frac{8}{100} \times 100 = 8$ gram

d. Asam stearat 3 gram $= 3$ gram

e. Nipagin 0,18 gram $= 0,18$ gram

f. Nipasol 0,02 gram $= 0,02$ gram

g. Gliserin 5 gram $= 5$ gram

h. Minyak anggrek 2 gtt $= 2$ tetes

i. Aquadest ad 100 ml $= 100$ ml $- (27,6 + 2 + 8 + 3 + 0,18 +$

    $0,02 + 5)$ $= 54, 2$ ml.

c. **Klasifikasi emulsifying berdasarkan nilai HLB**

Harga HLB	Penggunaan	Dispersibilitas di air
1-3	Antifoaming agent	Tidak
3-6	W/O emulsifying agent	Jelek
7-9	Wetting agent	Dispersi seperti susu yang bersifat tidak stabil
8-16	O/W emulsifying agent	Dispersi seperti susu bersifat stabil
13-15	Detergents	Dispersi translucent
15-18	Solubilizing agent	Larutan jernih

(Kim, 2005)

d. **Perhitungan nilai HLB**

Formula 1

   Polysorbate 80 4 gram (A) HLB 15 (HLB_a)

   Setil alkohol   2 gram (B) HLB 15 (HLB_b)

Berat campuran = 4 gram + 2 gram = 6 gram

($HLB_a \times A$) + ($HLB_b \times B$) = HLB campuran $\times$ Berat campuran

(15×4 gram) + (15×2) = HLB campuran $\times$ 6 gram

60 gram + 30 gram   = HLB campuran $\times$ 6 gram

90 gram   = HLB campuran $\times$ 6 gram

HLB campuran = 15

Formula 2

   Polysorbate 80 8 gram (A) HLB 15 (HLB_a)

   Setil alkohol   2 gram (B) HLB 15 (HLB_b)

Berat campuran = 8 gram + 2 gram = 10 gram

($HLB_a \times A$) + ($HLB_b \times B$) = HLB campuran $\times$ Berat campuran

(15×8 gram) + (15×2) = HLB campuran $\times$ 10 gram

120 gram + 30 gram = HLB campuran $\times$ 10 gram

150 gram   = HLB campuran $\times$ 10 gram

HLB campuran = 15

Formula 3

   Polysorbate 80 2 gram (A) HLB 15 (HLB_a)

   Setil alkohol   4 gram (B) HLB 15 (HLB_b)

Berat campuran = 2 gram + 4 gram   = 6 gram

$(\text{HLB}_a \times A) + (\text{HLB}_b \times B)$ $= \text{HLB campuran} \times \text{Berat campuran}$

$(15 \times 2 \text{ gram}) + (15 \times 4)$ $= \text{HLB campuran} \times 6 \text{ gram}$

$30 \text{ gram} + 60 \text{ gram}$ $= \text{HLB campuran} \times 6 \text{ gram}$

90 gram $= \text{HLB campuran} \times 6 \text{ gram}$

$15 = \text{HLB campuran}.$

Formula 4

Polysorbate 80 $\quad$ 2 gram (A) $\quad$ HLB 15 (HLB_a)

Setil alkohol $\quad$ 8 gram (B) $\quad$ HLB 15 (HLB_b)

Berat campuran = 2 gram + 8 gram = 10 gram

$(\text{HLB}_a \times A) + (\text{HLB}_b \times B)$ $= \text{HLB campuran} \times \text{Berat campuran}$

$(15 \times 2 \text{ gram}) + (15 \times 8)$ $= \text{HLB campuran} \times 10 \text{ gram}$

$30 \text{ gram} + 120 \text{ gram}$ $= \text{HLB campuran} \times 10 \text{ gram}$

150 gram $= \text{HLB campuran} \times 10 \text{ gram}$

HLB campuran = 15

e. **Hasil verifikasi minyak kelapa murni *(Virgin Coconut Oil)***

Uji		Standar Nasional Indonesia (SNI) 7381-2008	*Certificate of Analysis* (CoA)	Verifikasi
Organoleptis	Bentuk			
	Warna	Tidak berwarna hingga kuning pucat	Tidak berwarna *(colorless)*	Tidak berwarna *(colorless)*
	Bau	Khas kelapa segar, tidak tengik	Bau khas kelapa *(mild coconut smell)*	Bau khas kelapa

Lampiran 2. Foto hasil pengujian mutu fisik dan stabilitas losion pelembab VCO

a. Losion pelembab VCO dalam kemasan botol

Losion pelembab VCO dalam kemasan

b. Losion pelembab VCO formula 1

Losion pelembab VCO formula 1

c. Losion pelembab VCO formula 2

Losion pelembab VCO formula 2

d. Losion pelembab VCO formula

Losion pelembab VCO formula 3

e. Losion pelembab VCO formula 4

Losion pelembab VCO formula 4

f. Pengujian pH losion pelembab VCO formula 1

Pengujian pH losion pelembab VCO formula

g. **Pengujian pH losion pelembab VCO formula 2**

Pengujian pH losion pelembab VCO formula 2

h. **Pengujian pH losion pelembab VCO formula 3**

Pengujian pH losion pelembab VCO formula 3

i. **Pengujian pH losion pelembab VCO formula 4**

Pengujian pH losion pelembab VCO formula 4

j. **Pengujian viskositas losion pelembab VCO**

Pengujian viskositas losion pelembab VCO

k. **Pengujian daya sebar losion pelembab VCO**
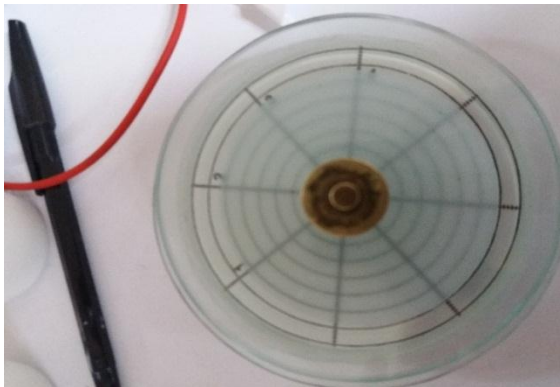
Pengujian daya sebar losion pelembab VCO

l. **Alat uji daya lekat sediaan semi padat**

Alat uji daya lekat sediaan semi padat

m. Pengujian kelarutan zat warna losion pelembab dengan *methylene blue*
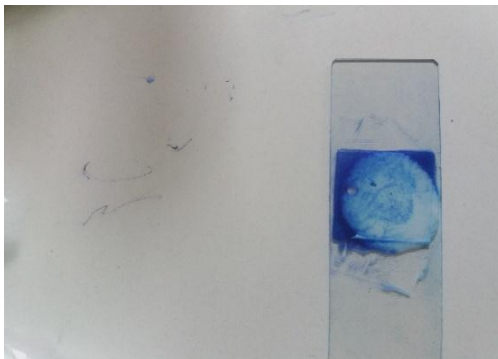
Pengujian kelarutan zat warna losion pelembab dengan *methylene blue*

n. Pengujian kelarutan zat warna losion pelembab dengan larutan sudan III

Pengujian kelarutan zat warna losion pelembab dengan larutan sudan III

o. Pengujian pengenceran losion pelembab dengan aquadest

Pengujian pengenceran losion pelembab dengan aquadest

p.   Pengujian daya hantar listrik losion pelembab VCO
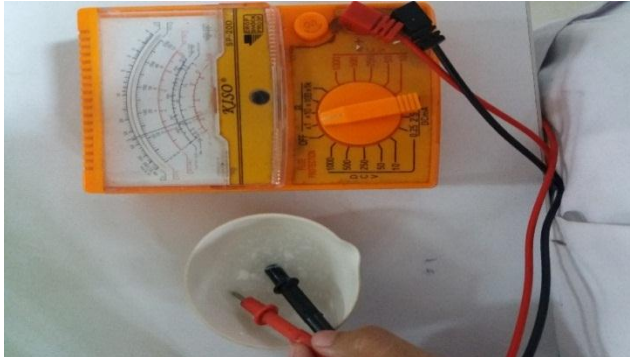
Pengujian daya hantar listrik losion pelembab VCO

q.   Alat uji sentrifugasi

Alat uji sentrifugasi

r.   Pengujian stabilitas losion pelembab VCO

Pengujian stabilitas losion pelembab VCO

Lampiran 3. Data hasil pengujian viskositas losion VCO selama 28 hari

Hasil pengujian viskositas losion pelembab VCO selama 28 hari penyimpanan

Hari pengujian	Viskositas (d.Pas)			
	F1	F2	F3	F4
H 1	10	8	16	20
	12	8	17	21
	10	9	17	21
Rata rata	10,66667	8,333333	16,66667	20,66667
SD	1,154701	0,57735	0,57735	0,57735
H 7	13	10	20	25
	15	10	19	26
	15	12	20	26
Rata rata	14,33333	10,66667	19,66667	25,66667
SD	1,154701	1,154701	0,57735	0,57735
H 14	19	15	23	29
	20	15	22	30
	20	16	24	30
Rata rata	19,66667	15,33333	23	29,66667
SD	0,57735	0,57735	1	0,57735
H 21	23	20	27	32
	23	20	29	33
	23	19	29	33
Rata rata	23	19,66667	28,33333	32,66667
SD	0	0,57735	1,154701	0,57735
H 28	25	22	31	34
	27	23	30	35
	27	22	32	35
Rata rata	26,33333	22,33333	31	34,66667
SD	1,154701	0,57735	1	0,57735

Ket : SD= Standar deviasi, Formula 1 konsentrasi polysorbate 80 dan setil alkohol (4% : 2%), Formula 2 konsentrasi polysorbate 80 dan setil alkohol (8% : 2%), Formula 3 konsentrasi polysorbate 80 dan setil alkohol (2% : 4%), Formula 4 konsentrasi polysorbate 80 dan setil alkohol (2% : 8%)

Lampiran 4. Hasil analisis data viskositas losion pelembab VCO

Analisis statistik uji viskositas formula losion VCO

One-Sample Kolmogorov-Smirnov Test

		Pengujian Viskositas
N		20
Normal Parameters[a,b]	Mean	21.57
	Std. Deviation	7.538
Most Extreme Differences	Absolute	.097
	Positive	.077
	Negative	-.097
Kolmogorov-Smirnov Z		.433
Asymp. Sig. (2-tailed)		.992

Descriptives

Pengujian Viskositas

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
Formula I	5	18.76	6.364	2.846	10.86	26.66	11	26
Formula II	5	15.22	5.885	2.632	7.91	22.53	8	22
Formula III	5	23.70	5.962	2.666	16.30	31.10	17	31
Formula IV	5	28.60	5.612	2.510	21.63	35.57	21	35
Total	20	21.57	7.538	1.686	18.04	25.10	8	35

Test of Homogeneity of Variances

Pengujian Viskositas

Levene Statistic	df1	df2	Sig.
.047	3	16	.986

ANOVA

Pengujian Viskositas

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	510.882	3	170.294	4.791	.014
Within Groups	568.720	16	35.545		
Total	1079.602	19			

Multiple Comparisons

Dependent Variable: Pengujian Viskositas
Tukey HSD

(I) Formula Losion	(J) Formula Losion	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Formula I	Formula II	3.540	3.771	.785	-7.25	14.33
	Formula III	-4.940	3.771	.570	-15.73	5.85
	Formula IV	-9.840	3.771	.080	-20.63	.95
Formula II	Formula I	-3.540	3.771	.785	-14.33	7.25
	Formula III	-8.480	3.771	.152	-19.27	2.31
	Formula IV	-13.380*	3.771	.013	-24.17	-2.59
Formula III	Formula I	4.940	3.771	.570	-5.85	15.73
	Formula II	8.480	3.771	.152	-2.31	19.27
	Formula IV	-4.900	3.771	.576	-15.69	5.89
Formula IV	Formula I	9.840	3.771	.080	-.95	20.63
	Formula II	13.380*	3.771	.013	2.59	24.17
	Formula III	4.900	3.771	.576	-5.89	15.69

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

Pengujian Viskositas

Tukey HSD^a

Formula Losion	N	Subset for alpha = 0.05 1	Subset for alpha = 0.05 2
Formula II	5	15.22	
Formula I	5	18.76	18.76
Formula III	5	23.70	23.70
Formula IV	5		28.60
Sig.		.152	.080

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

Lampiran 5. Data hasil pengujian diameter penyebaran losion VCO

Tabel 15. Hasil pengujian diameter penyebaran losion pelembab VCO

Hari pengujian	F1	F2	F3	F4
		(centimeter)		
H 1				
Tanpa beban	5,7	6,9	5,3	5,2
50 gram	5,83	7	5,43	5,4
100 gram	5,93	7,2	5,53	5,3
150 gram	6	7,3	5,63	5,36
200 gram	6	7,5	5,7	5,5
Rata- rata	5,892	7,18	5,518	5,352
SD	0,127945	0,238747	0,158965	0,111893
H 7				
Tanpa beban	5,3	6,46	5,1	4,85
50 gram	5,43	6,63	5,3	4,89
100 gram	5,5	6,8	5,43	4,96
150 gram	5,6	6,9	5,53	5,1
200 gram	5,8	6,9	5,63	5,2
Rata- rata	5,526	6,738	5,398	5
SD	0,188096	0,190578	0,206567	0,146799
H 14				
Tanpa beban	5	6	5	4,83
50 gram	5,23	6,26	5,13	4,95
100 gram	5,3	6,36	5,23	5,03
150 gram	5,43	6,5	5,36	5,13
200 gram	5,53	6,7	5,36	5,3
Rata- rata	5,298	6,364	5,216	5,048
SD	0,202904	0,262069	0,154693	0,178662
H 21	5	6	4,93	4,84
Tanpa beban	5,16	6,2	5,1	4,86
50 gram	5,36	6,3	5,2	5
100 gram	5,5	6,5	5,3	5,1
150 gram	5,63	6,63	5,43	5,23
200 gram	5,33	6,326	5,192	5,006
SD	0,253772	0,24775	0,190709	0,164256
H 28				
Tanpa beban	5,16	6,2	5,03	4,83
50 gram	5,23	6,3	5,1	4,96
100 gram	5,3	6,36	5,23	5,1
150 gram	5,43	6,5	5,33	5,15
200 gram	5,5	6,63	5,43	5,26
Rata- rata	5,324	6,398	5,224	5,06
SD	0,140107	0,169174	0,16334	0,16778

Lampiran 6. Hasil analisis data uji diameter penyebaran losion VCO

One-Sample Kolmogorov-Smirnov Test

		Pengujian Daya Sebar
N		20
Normal Parameters[a,b]	Mean	5.6195
	Std. Deviation	.63809
	Absolute	.258
Most Extreme Differences	Positive	.258
	Negative	-.166
Kolmogorov-Smirnov Z		1.155
Asymp. Sig. (2-tailed)		.139

Descriptives

Pengujian Daya Sebar

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula I	5	5.4740	.25082	.11217	5.1626	5.7854	5.30	5.89
Formula II	5	6.6012	.36298	.16233	6.1505	7.0519	6.33	7.18
Formula III	5	5.3096	.14245	.06370	5.1327	5.4865	5.19	5.52
Formula IV	5	5.0932	.14698	.06573	4.9107	5.2757	5.00	5.35
Total	20	5.6195	.63809	.14268	5.3209	5.9181	5.00	7.18

Test of Homogeneity of Variances

Pengujian Daya Sebar

Levene Statistic	df1	df2	Sig.
2.354	3	16	.111

ANOVA

Pengujian Daya Sebar

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.790	3	2.263	38.269	.000
Within Groups	.946	16	.059		
Total	7.736	19			

Multiple Comparisons

Dependent Variable: Pengujian Daya Sebar

	(I) Formula Losion	(J) Formula Losion	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	Formula I	Formula II	-1.12720*	.15380	.000	-1.5672	-.6872
		Formula III	.16440	.15380	.713	-.2756	.6044
		Formula IV	.38080	.15380	.102	-.0592	.8208
	Formula II	Formula I	1.12720*	.15380	.000	.6872	1.5672
		Formula III	1.29160*	.15380	.000	.8516	1.7316
		Formula IV	1.50800*	.15380	.000	1.0680	1.9480
	Formula III	Formula I	-.16440	.15380	.713	-.6044	.2756
		Formula II	-1.29160*	.15380	.000	-1.7316	-.8516
		Formula IV	.21640	.15380	.513	-.2236	.6564
	Formula IV	Formula I	-.38080	.15380	.102	-.8208	.0592
		Formula II	-1.50800*	.15380	.000	-1.9480	-1.0680
		Formula III	-.21640	.15380	.513	-.6564	.2236

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

Pengujian Daya Sebar

	Formula Losion	N	Subset for alpha = 0.05	
			1	2
Student-Newman-Keuls[a]	Formula IV	5	5.0932	
	Formula III	5	5.3096	
	Formula I	5	5.4740	
	Formula II	5		6.6012
	Sig.		.061	1.000
Tukey HSD[a]	Formula IV	5	5.0932	
	Formula III	5	5.3096	
	Formula I	5	5.4740	
	Formula II	5		6.6012
	Sig.		.102	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

Lampiran 7. Data hasil pengujian daya lekat losion VCO

Tabel 16. Hasil pengujian daya lekat losion pelembab VCO selama 28 hari

Hari pengujian	H 1	H 7	H 14	H 21	H 28
F 1	1.37	1.63	1.8	1.82	1.85
	1.47	1.72	1.73	1.79	1.83
	1.26	1.71	1.75	1.8	1.81
Rata- rata	1.366667	1.686667	1.76	1.803333	1.83
SD	0.10504	0.049329	0.036056	0.015275	0.02
F2	0.81	1.46	1.46	0.94	1.49
	0.94	1.53	1.4	1.03	1.46
	0.74	1.59	1.43	1.07	1.45
Rata-rata	0.83	1.526667	1.43	1.013333	1.466667
SD	0.101489	0.065064	0.03	0.066583	0.020817
F3	1.26	2.19	1.73	1.79	1.6
	1.76	2.25	1.8	1.72	1.59
	1.33	2.32	1.79	1.58	1.65
Rata rata	1.45	2.253333	1.773333	1.696667	1.613333
SD	0.27074	0.065064	0.037859	0.106927	0.032146
F4	2.18	2.58	1.99	1.86	1.83
	1.59	2.57	1.98	1.59	1.7
	2.31	2.48	2.05	1.63	1.79
Rata-rata	2.026667	2.543333	2.006667	1.693333	1.773333
SD	0.38371	0.055076	0.037859	0.145717	0.066583

Ket : SD= Standar deviasi, Formula 1 konsentrasi polysorbate 80 dan setil alkohol (4% : 2%), Formula 2 konsentrasi polysorbate 80 dan setil alkohol (8% : 2%), Formula 3 konsentrasi polysorbate 80 dan setil alkohol (2% : 4%), Formula 4 konsentrasi polysorbate 80 dan setil alkohol (2% : 8%).

Lampiran 8. Hasil analisis data uji daya lekat losion VCO

One-Sample Kolmogorov-Smirnov Test

		Pengujian daya lekat
N		20
Normal Parameters[a,b]	Mean	1.6735
	Std. Deviation	.38453
Most Extreme Differences	Absolute	.142
	Positive	.142
	Negative	-.113
Kolmogorov-Smirnov Z		.635
Asymp. Sig. (2-tailed)		.815

a. Test distribution is Normal.

b. Calculated from data.

Descriptives

Pengujian daya lekat

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
Formula I	5	1.6860	.19074	.08530	1.4492	1.9228	1.36	1.83
Formula II	5	1.2500	.30960	.13846	.8656	1.6344	.83	1.52
Formula III	5	1.7540	.30146	.13482	1.3797	2.1283	1.45	2.25
Formula IV	5	2.0040	.33201	.14848	1.5918	2.4162	1.69	2.54
Total	20	1.6735	.38453	.08598	1.4935	1.8535	.83	2.54

Test of Homogeneity of Variances

Pengujian daya lekat

Levene Statistic	df1	df2	Sig.
.538	3	16	.663

ANOVA

Pengujian daya lekat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.476	3	.492	5.904	.007
Within Groups	1.333	16	.083		
Total	2.809	19			

Multiple Comparisons

Dependent Variable: Pengujian daya lekat
Tukey HSD

(I) Formula Losion	(J) Formula Losion	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula I	Formula II	.43600	.18258	.120	-.0864	.9584
	Formula III	-.06800	.18258	.982	-.5904	.4544
	Formula IV	-.31800	.18258	.336	-.8404	.2044
Formula II	Formula I	-.43600	.18258	.120	-.9584	.0864
	Formula III	-.50400	.18258	.061	-1.0264	.0184
	Formula IV	-.75400*	.18258	.004	-1.2764	-.2316
Formula III	Formula I	.06800	.18258	.982	-.4544	.5904
	Formula II	.50400	.18258	.061	-.0184	1.0264
	Formula IV	-.25000	.18258	.535	-.7724	.2724
Formula IV	Formula I	.31800	.18258	.336	-.2044	.8404
	Formula II	.75400*	.18258	.004	.2316	1.2764
	Formula III	.25000	.18258	.535	-.2724	.7724

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

Pengujian daya lekat

Tukey HSD[a]

Formula Losion	N	Subset for alpha = 0.05	
		1	2
Formula II	5	1.2500	
Formula I	5	1.6860	1.6860
Formula III	5	1.7540	1.7540
Formula IV	5		2.0040
Sig.		.061	.336

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Lampiran 9. Hasil analisis data uji pH losion pelembab VCO

One-Sample Kolmogorov-Smirnov Test

		Pengujian pH
N		20
Normal Parameters[a,b]	Mean	5.55
	Std. Deviation	.238
Most Extreme Differences	Absolute	.122
	Positive	.122
	Negative	-.110
Kolmogorov-Smirnov Z		.544
Asymp. Sig. (2-tailed)		.929

a. Test distribution is Normal.

b. Calculated from data.

Descriptives

Pengujian pH

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
Formula I	5	5.46	.103	.046	5.34	5.59	5	6
Formula II	5	5.78	.129	.058	5.62	5.94	6	6
Formula III	5	5.60	.261	.117	5.28	5.93	5	6
Formula IV	5	5.36	.222	.099	5.09	5.64	5	6
Total	20	5.55	.238	.053	5.44	5.66	5	6

Test of Homogeneity of Variances

Pengujian pH

Levene Statistic	df1	df2	Sig.
2.140	3	16	.135

ANOVA

Pengujian pH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.501	3	.167	4.616	.016
Within Groups	.579	16	.036		
Total	1.079	19			

Multiple Comparisons

Dependent Variable: Pengujian pH
Tukey HSD

(I) Formula Losion	(J) Formula Losion	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	Formula II	-.320	.120	.073	-.66	.02
Formula I	Formula III	-.138	.120	.667	-.48	.21
	Formula IV	.102	.120	.831	-.24	.45
	Formula I	.320	.120	.073	-.02	.66
Formula II	Formula III	.182	.120	.453	-.16	.53
	Formula IV	.422[*]	.120	.014	.08	.77
	Formula I	.138	.120	.667	-.21	.48
Formula III	Formula II	-.182	.120	.453	-.53	.16
	Formula IV	.240	.120	.230	-.10	.58
	Formula I	-.102	.120	.831	-.45	.24
Formula IV	Formula II	-.422[*]	.120	.014	-.77	-.08
	Formula III	-.240	.120	.230	-.58	.10

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

Pengujian pH

Tukey HSD[a]

Formula Losion	N	Subset for alpha = 0.05	
		1	2
Formula IV	5	5.3620	
Formula I	5	5.4640	5.4640
Formula III	5	5.6020	5.6020
Formula II	5		5.7840
Sig.		.230	.073

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.