BAB V

KESIMPULAN DAN SARAN

A. Kesimpulan

Kesimpulan yang didapat berdasarkan hasil penelitian adalah :

1. Minyak wijen dengan bahan pengental agar-agar dalam konsentrasi 0,5 %, 0,6 % dan 0,7 % dapat dibuat menjadi emulsi.
2. Emulsi minyak wijen dengan konsentrasi bahan pengental agar-agar 0,5 %, 0,6 % dan 0,7 % memenuhi syarat uji stabilitas emulsi antara lain : uji viskositas dan uji pemisahan sentrifugasi.

B. Saran

Saran yang didapat dari hasil pembuatan emulsi minyak wijen adalah:

1. Perlu dilakukan penelitian dengan menggunakan bahan pengental lain dalam pembuatan emulsi minyak wijen.
2. Perlu dilakukan penelitian lebih lanjut tentang pembuatan emulsi minyak wijen menggunakan emulgator jenis lain.

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Lampiran 1. Minyak Wijen

Lampiran 2. Foto Alat

Viscotester

Amperemeter

Timbangan Analitik

Alat Sentrifuse

Lampiran 3. Gambar Hasil Uji Sentrifugasi

Hasil Uji Sentrifugasi

Lampiran 4.Hasil Pengujian Emulsi menurut metode kertas saring/tisu

Hasil Penentuan jenis emulsi menurut metode kertas saring/tisu

Lampiran 5. Gambar Emulsi

Agar-agar 0,5%

Agar-agar 0,6%

Agar-agar 0,7%

Lampiran 6. Hasil spss viskositas minggu ke-0

Your trial period for SPSS for Windows will expire in 14 days.

```
NPAR TESTS
  /K-S(NORMAL)=Viskositas
  /STATISTICS DESCRIPTIVES

  /MISSING ANALYSIS.
```

NPar Tests

[DataSet0]

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Viskositas mingguke 0	9	8.400	.4123	7.9	9.2

One-Sample Kolmogorov-Smirnov Test

		Viskositas mingguke 0
N		9
Normal Parameters[a]	Mean	8.400
	Std. Deviation	.4123
Most Extreme Differences	Absolute	.182
	Positive	.182
	Negative	-.113
Kolmogorov-Smirnov Z		.546
Asymp. Sig. (2-tailed)		.927

a. Test distribution is Normal.

```
ONEWAY Viskositas BY Formula
  /STATISTICS DESCRIPTIVES HOMOGENEITY
  /MISSING ANALYSIS

  /POSTHOC=SCHEFFE ALPHA(0.05).
```

Oneway

[DataSet0]

Descriptives

Viskositas mingguke 0

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	3	8.000	.1000	.0577	7.752	8.248	7.9	8.1
Formula 2	3	8.400	.1732	.1000	7.970	8.830	8.2	8.5
Formula 3	3	8.800	.4000	.2309	7.806	9.794	8.4	9.2
Total	9	8.400	.4123	.1374	8.083	8.717	7.9	9.2

Test of Homogeneity of Variances

Viskositas mingguke 0

Levene Statistic	df1	df2	Sig.
1.556	2	6	.286

ANOVA

Viskositas mingguke 0

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.960	2	.480	7.200	.025
Within Groups	.400	6	.067		
Total	1.360	8			

Post Hoc Tests

Multiple Comparisons

Viskositas mingguke 0

Scheffe

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.4000	.2108	.244	-1.076	.276
	Formula 3	-.8000*	.2108	.025	-1.476	-.124
Formula 2	Formula 1	.4000	.2108	.244	-.276	1.076
	Formula 3	-.4000	.2108	.244	-1.076	.276
Formula 3	Formula 1	.8000*	.2108	.025	.124	1.476
	Formula 2	.4000	.2108	.244	-.276	1.076

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

Homogeneous Subsets

Viskositas mingguke 0

Scheffe

Formula	N	Subset for alpha = 0.05	
		1	2
Formula 1	3	8.000	
Formula 2	3	8.400	8.400
Formula 3	3		8.800
Sig.		.244	.244

Means for groups in homogeneous subsets are displayed.

Lampiran 7. Hasil spss Viskositas minggu ke 1

```
NPAR TESTS
  /K-S(NORMAL)=Viskositas
  /STATISTICS DESCRIPTIVES

  /MISSING ANALYSIS.
```

NPar Tests

[DataSet0]

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Viskositas mingguke 1	9	9.033	.5500	8.4	9.9

One-Sample Kolmogorov-Smirnov Test

		Viskositas mingguke 1
N		9
Normal Parameters[a]	Mean	9.033
	Std. Deviation	.5500
Most Extreme Differences	Absolute	.172
	Positive	.172
	Negative	-.135
Kolmogorov-Smirnov Z		.517
Asymp. Sig. (2-tailed)		.952

a. Test distribution is Normal.

```
ONEWAY Viskositas BY Formula
  /STATISTICS DESCRIPTIVES HOMOGENEITY
  /MISSING ANALYSIS

  /POSTHOC=SCHEFFE ALPHA(0.05).
```

Oneway

[DataSet0]

Descriptives

Viskositas mingguke 1

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	3	8.500	.1000	.0577	8.252	8.748	8.4	8.6
Formula 2	3	8.900	.2000	.1155	8.403	9.397	8.7	9.1
Formula 3	3	9.700	.2000	.1155	9.203	10.197	9.5	9.9
Total	9	9.033	.5500	.1833	8.611	9.456	8.4	9.9

Test of Homogeneity of Variances

Viskositas mingguke 1

Levene Statistic	df1	df2	Sig.
.444	2	6	.661

ANOVA

Viskositas mingguke 1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.240	2	1.120	37.333	.000
Within Groups	.180	6	.030		
Total	2.420	8			

Post Hoc Tests

Multiple Comparisons

Viskositas mingguke 1

Scheffe

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.4000	.1414	.079	-.854	.054
	Formula 3	-1.2000*	.1414	.000	-1.654	-.746
Formula 2	Formula 1	.4000	.1414	.079	-.054	.854
	Formula 3	-.8000*	.1414	.004	-1.254	-.346
Formula 3	Formula 1	1.2000*	.1414	.000	.746	1.654
	Formula 2	.8000*	.1414	.004	.346	1.254

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

Homogeneous Subsets

Viskositas mingguke 1

Scheffe

Formula	N	Subset for alpha = 0.05	
		1	2
Formula 1	3	8.500	
Formula 2	3	8.900	
Formula 3	3		9.700
Sig.		.079	1.000

Means for groups in homogeneous subsets are displayed.

Lampiran8. Hasil spss Viskositas minggu ke 2

```
NPAR TESTS
  /K-S(NORMAL)=Viskositas
  /STATISTICS DESCRIPTIVES

  /MISSING ANALYSIS.
```

NPar Tests

[DataSet0]

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Viskositas mingguke 2	9	11.500	1.1694	9.8	12.8

One-Sample Kolmogorov-Smirnov Test

		Viskositas mingguke 2
N		9
Normal Parameters[a]	Mean	11.500
	Std. Deviation	1.1694
Most Extreme Differences	Absolute	.235
	Positive	.200
	Negative	-.235
Kolmogorov-Smirnov Z		.704
Asymp. Sig. (2-tailed)		.705

a. Test distribution is Normal.

```
ONEWAY Viskositas BY Formula
  /STATISTICS DESCRIPTIVES HOMOGENEITY
  /MISSING ANALYSIS

  /POSTHOC=SCHEFFE ALPHA(0.05).
```

Oneway

[DataSet0]

Descriptives

Viskositas minggu ke 2

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	3	10.000	.2000	.1155	9.503	10.497	9.8	10.2
Formula 2	3	12.000	.3000	.1732	11.255	12.745	11.7	12.3
Formula 3	3	12.500	.3000	.1732	11.755	13.245	12.2	12.8
Total	9	11.500	1.1694	.3898	10.601	12.399	9.8	12.8

Test of Homogeneity of Variances

Viskositas minggu ke 2

Levene Statistic	df1	df2	Sig.
.182	2	6	.838

ANOVA

Viskositas minggu ke 2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.500	2	5.250	71.591	.000
Within Groups	.440	6	.073		
Total	10.940	8			

Post Hoc Tests

Multiple Comparisons

Viskositas minggu ke 2

Scheffe

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-2.0000*	.2211	.000	-2.709	-1.291
	Formula 3	-2.5000*	.2211	.000	-3.209	-1.791
Formula 2	Formula 1	2.0000*	.2211	.000	1.291	2.709
	Formula 3	-.5000	.2211	.157	-1.209	.209
Formula 3	Formula 1	2.5000*	.2211	.000	1.791	3.209
	Formula 2	.5000	.2211	.157	-.209	1.209

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

Homogeneous Subsets

Viskositas minggu ke 2

Scheffe

Formula	N	Subset for alpha = 0.05	
		1	2
Formula 1	3	10.000	
Formula 2	3		12.000
Formula 3	3		12.500
Sig.		1.000	.157

Means for groups in homogeneous subsets are displayed.

Lampiran9. Hasil SPSS Pemisahan Sentrifugasi minggu ke-0

```
NPAR TESTS
  /K-S(NORMAL)=Pemisahan sentrifugasi
  /STATISTICS DESCRIPTIVES

  /MISSING ANALYSIS.
```

NPar Tests

[DataSet0]

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Pemisahan sentrifugasi minggu ke-0	9	.0367	.01936	.01	.07

One-Sample Kolmogorov-Smirnov Test

		Pemisahan sentrifugasi minggu ke-0
N		9
Normal Parameters[a]	Mean	.0367
	Std. Deviation	.01936
Most Extreme Differences	Absolute	.199
	Positive	.190
	Negative	-.199
Kolmogorov-Smirnov Z		.597
Asymp. Sig. (2-tailed)		.869

a. Test distribution is Normal.

```
ONEWAY Pemisahan sentrifugasi BY Formula
  /STATISTICS DESCRIPTIVES HOMOGENEITY
  /MISSING ANALYSIS

  /POSTHOC=SCHEFFE ALPHA(0.05).
```

Oneway

[DataSet0]

Descriptives

Pemisahan sentrifugasi minggu ke-0

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	3	.0200	.01000	.00577	-.0048	.0448	.01	.03
Formula 2	3	.0333	.01528	.00882	-.0046	.0713	.02	.05
Formula 3	3	.0567	.01155	.00667	.0280	.0854	.05	.07
Total	9	.0367	.01936	.00645	.0218	.0516	.01	.07

Test of Homogeneity of Variances

Pemisahan sentrifugasi minggu ke-0

Levene Statistic	df1	df2	Sig.
.462	2	6	.651

ANOVA

Pemisahan sentrifugas iminggu ke-0

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.002	2	.001	6.643	.030
Within Groups	.001	6	.000		
Total	.003	8			

Post Hoc Tests

Multiple Comparisons

Pemisahan sentrifugasi minggu ke-0

Scheffe

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.01333	.01018	.471	-.0460	.0193
	Formula 3	-.03667*	.01018	.032	-.0693	-.0040
Formula 2	Formula 1	.01333	.01018	.471	-.0193	.0460
	Formula 3	-.02333	.01018	.152	-.0560	.0093
Formula 3	Formula 1	.03667*	.01018	.032	.0040	.0693
	Formula 2	.02333	.01018	.152	-.0093	.0560

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

Homogeneous Subsets

Pemisahan sentrifugasi minggu ke-0

Scheffe

Formula	N	Subset for alpha = 0.05	
		1	2
Formula 1	3	.0200	
Formula 2	3	.0333	.0333
Formula 3	3		.0567
Sig.		.471	.152

Means for groups in homogeneous subsets are displayed.

Lampiran 10. Hasil SPSS Pemisahan Sentrifugasi minggu ke-1

```
NPAR TESTS
  /K-S(NORMAL)=Pemisahan sentrifugasi
  /STATISTICS DESCRIPTIVES

  /MISSING ANALYSIS.
```

NPar Tests

[DataSet0]

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Pemisahan sentrifugasi minggu ke-1	9	.0756	.01810	.04	.10

One-Sample Kolmogorov-Smirnov Test

		Pemisahan sentrifugasi minggu ke-1
N		9
Normal Parameters[a]	Mean	.0756
	Std. Deviation	.01810
Most Extreme Differences	Absolute	.157
	Positive	.101
	Negative	-.157
Kolmogorov-Smirnov Z		.472
Asymp. Sig. (2-tailed)		.979

a. Test distribution is Normal.

```
ONEWAY Pemisahan sentrifugasi BY Formula
  /STATISTICS DESCRIPTIVES HOMOGENEITY
  /MISSING ANALYSIS

  /POSTHOC=SCHEFFE ALPHA(0.05).
```

Oneway

[DataSet0]

Descriptives

Pemisahan sentrifugasi minggu ke-1

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	3	.0567	.01528	.00882	.0187	.0946	.04	.07
Formula 2	3	.0800	.01000	.00577	.0552	.1048	.07	.09
Formula 3	3	.0900	.01000	.00577	.0652	.1148	.08	.10
Total	9	.0756	.01810	.00603	.0616	.0895	.04	.10

Test of Homogeneity of Variances

Pemisahan sentrifugasi minggu ke-1

Levene Statistic	df1	df2	Sig.
.516	2	6	.621

ANOVA

Pemisahan sentrifugasi minggu ke-1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.002	2	.001	6.077	.036
Within Groups	.001	6	.000		
Total	.003	8			

Post Hoc Tests

Multiple Comparisons

Pemisahan sentrifugasi minggu ke-1

Scheffe

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.02333	.00981	.136	-.0548	.0081
	Formula 3	-.03333*	.00981	.040	-.0648	-.0019
Formula 2	Formula 1	.02333	.00981	.136	-.0081	.0548
	Formula 3	-.01000	.00981	.619	-.0415	.0215
Formula 3	Formula 1	.03333*	.00981	.040	.0019	.0648
	Formula 2	.01000	.00981	.619	-.0215	.0415

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

Homogeneous Subsets

Pemisahan sentrifugasi minggu ke-1

Scheffe

Formula	N	Subset for alpha = 0.05	
		1	2
Formula 1	3	.0567	
Formula 2	3	.0800	.0800
Formula 3	3		.0900
Sig.		.136	.619

Means for groups in homogeneous subsets are displayed.

Lampiran 11.Hasil SPSS Pemisahan Sentrifugasi mingguke 2

```
NPAR TESTS
  /K-S(NORMAL)=Pemisahan sentrifugasi
  /STATISTICS DESCRIPTIVES

  /MISSING ANALYSIS.
```

NPar Tests

[DataSet0]

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Pemisahan sentrifugasi minggu ke-2	9	.1000	.02179	.07	.13

One-Sample Kolmogorov-Smirnov Test

		Pemisahan sentrifugasi minggu ke-2
N		9
Normal Parameters[a]	Mean	.1000
	Std. Deviation	.02179
Most Extreme Differences	Absolute	.167
	Positive	.167
	Negative	-.167
Kolmogorov-Smirnov Z		.500
Asymp. Sig. (2-tailed)		.964

a. Test distribution is Normal.

```
ONEWAY Pemisahan sentrifugasi BY Formula
  /STATISTICS DESCRIPTIVES HOMOGENEITY
  /MISSING ANALYSIS

  /POSTHOC=SCHEFFE ALPHA(0.05).
```

Oneway

[DataSet0]

Descriptives

Pemisahan sentrifugasi minggu ke-2

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	3	.0800	.01732	.01000	.0370	.1230	.07	.10
Formula 2	3	.1000	.01000	.00577	.0752	.1248	.09	.11
Formula 3	3	.1200	.01732	.01000	.0770	.1630	.10	.13
Total	9	.1000	.02179	.00726	.0832	.1168	.07	.13

Test of Homogeneity of Variances

Pemisahan sentrifugasi minggu ke-2

Levene Statistic	df1	df2	Sig.
1.333	2	6	.332

ANOVA

Pemisahan sentrifugasi minggu ke-2

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.002	2	.001	5.143	.050
Within Groups	.001	6	.000		
Total	.004	8			

Post Hoc Tests

Multiple Comparisons

Pemisahan sentrifugasi minggu ke-2

Scheffe

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.02000	.01247	.343	-.0600	.0200
	Formula 3	-.04000	.01247	.050	-.0800	.0000
Formula 2	Formula 1	.02000	.01247	.343	-.0200	.0600
	Formula 3	-.02000	.01247	.343	-.0600	.0200
Formula 3	Formula 1	.04000	.01247	.050	.0000	.0800
	Formula 2	.02000	.01247	.343	-.0200	.0600

Homogeneous Subsets

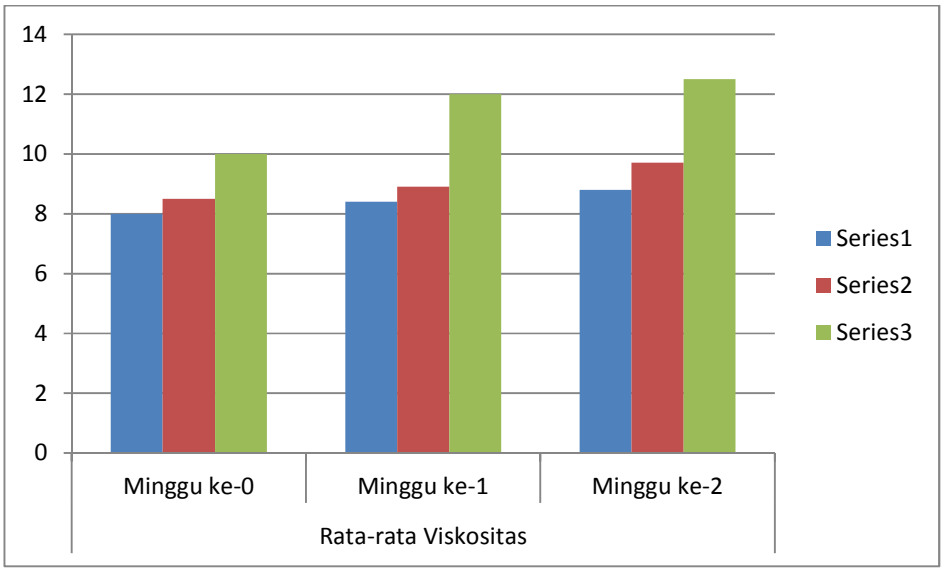
Pemisahan sentrifugasi minggu ke-2

Scheffe

Formula	N	Subset for alpha = 0.05
		1
Formula 1	3	.0800
Formula 2	3	.1000
Formula 3	3	.1200
Sig.		.050

Means for groups in homogeneous subsets are displayed.

Lampiran 12. Grafik rata-rata viskositas selama 2 minggu



Lampiran 13. Grafik rata-rata pemisahan sentrifugasi selama 2 minggu