BAB V

KESIMPULAN DAN SARAN

A. Kesimpulan

Hasil percobaan menunjukkan bahwa PGS mampu digunakan sebagai pengental dalam pembuatan emulsi minyak wijen. Perbandingan konsentrasi PGS yang digunakan sebagai pengental memberikan hasil stabilitas emulsi minyak wijen yang berbeda. PGS dengan konsentrasi 0,5% sebagai pengental dalam emulsi minyak wijen lebih stabil dari pada PGS dengan konsentrasi 1% dan Konsentrasi 1,5%.

B. Saran

1. Perlu dilakukan penelitian lebih lanjut menggunakan pengental jenis lain dalam pembuatan emulsi minyak wijen.
2. Perlu dilakukan penelitian lebih lanjut menggunakan kombinasi pengental PGS dengan pengental lain dalam pembuatan emulsi minyak wijen.

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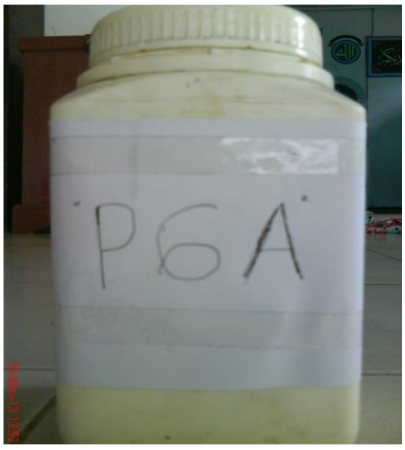
LAMPIRAN

Lampiran 1. Foto Bahan-bahan Aktif

a. Minyak Wijen*(Oleum sesami)*

b. PGA*(Pulvis Gummi Acaciae)*/Serbuk gom akasia/Serbuk gom arab



c. PGS*(Pulvis Gummosus)*

Lampiran 2. Proses Pembuatan Emulsi Minyak Wijen

Lampiran 3. Emulsi Minyak Wijen

PGS 0,5%

PGS 1%

PGS 1,5%

Lampiran 4. Alat Pengujian Emulsi

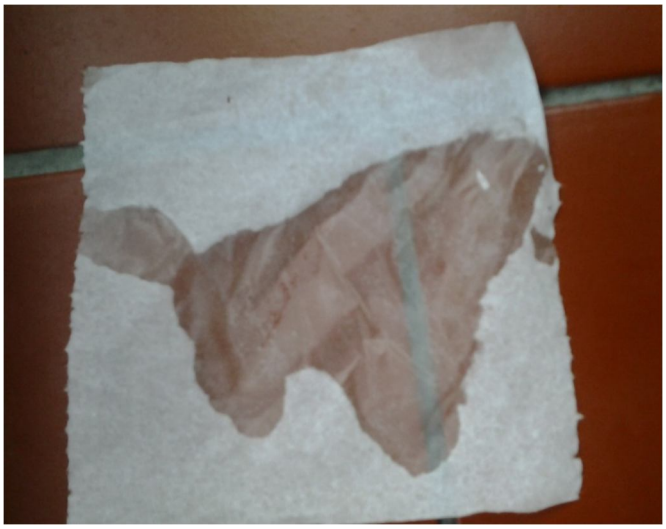
a. Viskometer

b. Sentrifuse

c. Ampermeter

Lampiran 5. Timbangan Analitik

Lampiran 6. Hasil Penentuan Jenis Emulsi dengan Metode Warna



Lampiran 7. Data Perhitungan Statistik Uji Viskositas

a. Minggu ke-0

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

  /MISSING ANALYSIS.
```

NPar Tests

```
[DataSet0]
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Viskositas Minggu ke-0	9	9.367	.5000	8.8	10.1

One-Sample Kolmogorov-Smirnov Test

		Uji Viskositas Minggu ke-0
N		9
Normal Parameters[a]	Mean	9.367
	Std. Deviation	.5000
Most Extreme Differences	Absolute	.220
	Positive	.220
	Negative	-.190
Kolmogorov-Smirnov Z		.659
Asymp. Sig. (2-tailed)		.778

a. Test distribution is Normal.

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

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

Oneway

```
[DataSet0]
```

Descriptives

Uji Viskositas Minggu ke-0

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	3	9.000	.2000	.1155	8.503	9.497	8.8	9.2
Formula 2	3	9.100	.2000	.1155	8.603	9.597	8.9	9.3
Formula 3	3	10.000	.1000	.0577	9.752	10.248	9.9	10.1
Total	9	9.367	.5000	.1667	8.982	9.751	8.8	10.1

Test of Homogeneity of Variances

Uji Viskositas Minggu ke-0

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

ANOVA

Uji Viskositas Minggu ke-0

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.820	2	.910	30.333	.001
Within Groups	.180	6	.030		
Total	2.000	8			

Post Hoc Tests

Multiple Comparisons

Uji Viskositas Minggu ke-0

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.1000	.1414	.768	-.534	.334
	Formula 3	-1.0000*	.1414	.001	-1.434	-.566
Formula 2	Formula 1	.1000	.1414	.768	-.334	.534
	Formula 3	-.9000*	.1414	.002	-1.334	-.466
Formula 3	Formula 1	1.0000*	.1414	.001	.566	1.434
	Formula 2	.9000*	.1414	.002	.466	1.334

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

Homogeneous Subsets

Uji Viskositas Minggu ke-0

Tukey HSD

Formula	N	Subset for alpha = 0.05	
		1	2
Formula 1	3	9.000	
Formula 2	3	9.100	
Formula 3	3		10.000
Sig.		.768	1.000

Means for groups in homogeneous subsets are displayed.

b. Minggu ke-1

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

  /MISSING ANALYSIS.
```

NPar Tests

```
[DataSet0]
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Viskositas Minggu ke-1	9	10.067	.5874	9.4	10.9

One-Sample Kolmogorov-Smirnov Test

		Uji Viskositas Minggu ke-1
N		9
Normal Parameters[a]	Mean	10.067
	Std. Deviation	.5874
Most Extreme Differences	Absolute	.212
	Positive	.212
	Negative	-.193
Kolmogorov-Smirnov Z		.636
Asymp. Sig. (2-tailed)		.814

a. Test distribution is Normal.

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

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

Oneway

```
[DataSet0]
```

Descriptives

Uji Viskositas Minggu ke-1

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	3	9.500	.1732	.1000	9.070	9.930	9.4	9.7
Formula 2	3	9.900	.1000	.0577	9.652	10.148	9.8	10.0
Formula 3	3	10.800	.1000	.0577	10.552	11.048	10.7	10.9
Total	9	10.067	.5874	.1958	9.615	10.518	9.4	10.9

Test of Homogeneity of Variances

Uji Viskositas Minggu ke-1

Levene Statistic	df1	df2	Sig.
1.333	2	6	.332

ANOVA

Uji Viskositas Minggu ke-1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.660	2	1.330	79.800	.000
Within Groups	.100	6	.017		
Total	2.760	8			

Post Hoc Tests

Multiple Comparisons

Uji Viskositas Minggu ke-1

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.4000*	.1054	.021	-.723	-.077
	Formula 3	-1.3000*	.1054	.000	-1.623	-.977
Formula 2	Formula 1	.4000*	.1054	.021	.077	.723
	Formula 3	-.9000*	.1054	.000	-1.223	-.577
Formula 3	Formula 1	1.3000*	.1054	.000	.977	1.623
	Formula 2	.9000*	.1054	.000	.577	1.223

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

Homogeneous Subsets

Uji Viskositas Minggu ke-1

Tukey HSD

Formula	N	Subset for alpha = 0.05		
		1	2	3
Formula 1	3	9.500		
Formula 2	3		9.900	
Formula 3	3			10.800
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

c. Minggu ke-2

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

  /MISSING ANALYSIS.
```

NPar Tests

```
[DataSet0]
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Viskositas Minggu ke-2	9	10.700	.7599	9.6	11.7

One-Sample Kolmogorov-Smirnov Test

		Uji Viskositas Minggu ke-2
N		9
Normal Parameters[a]	Mean	10.700
	Std. Deviation	.7599
Most Extreme Differences	Absolute	.167
	Positive	.128
	Negative	-.167
Kolmogorov-Smirnov Z		.500
Asymp. Sig. (2-tailed)		.964

a. Test distribution is Normal.

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

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

Oneway

```
[DataSet0]
```

Descriptives

Uji Viskositas Minggu ke-2

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	3	9.800	.2646	.1528	9.143	10.457	9.6	10.1
Formula 2	3	10.800	.1000	.0577	10.552	11.048	10.7	10.9
Formula 3	3	11.500	.2000	.1155	11.003	11.997	11.3	11.7
Total	9	10.700	.7599	.2533	10.116	11.284	9.6	11.7

Test of Homogeneity of Variances

Uji Viskositas Minggu ke-2

Levene Statistic	df1	df2	Sig.
1.500	2	6	.296

ANOVA

Uji Viskositas Minggu ke-2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.380	2	2.190	54.750	.000
Within Groups	.240	6	.040		
Total	4.620	8			

Post Hoc Tests

Multiple Comparisons

Uji Viskositas Minggu ke-2

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-1.0000*	.1633	.002	-1.501	-.499
	Formula 3	-1.7000*	.1633	.000	-2.201	-1.199
Formula 2	Formula 1	1.0000*	.1633	.002	.499	1.501
	Formula 3	-.7000*	.1633	.012	-1.201	-.199
Formula 3	Formula 1	1.7000*	.1633	.000	1.199	2.201
	Formula 2	.7000*	.1633	.012	.199	1.201

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

Homogeneous Subsets

Uji Viskositas Minggu ke-2

Tukey HSD

Formula	N	Subset for alpha = 0.05		
		1	2	3
Formula 1	3	9.800		
Formula 2	3		10.800	
Formula 3	3			11.500
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Lampiran 8. Data Perhitungan Statistik Uji Sentrifugasi

a. Minggu ke-0

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

  /MISSING ANALYSIS.
```

NPar Tests

```
[DataSet0]
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Sentrifugasi Minggu ke-0	9	.0300	.02000	.01	.06

One-Sample Kolmogorov-Smirnov Test

		Uji Sentrifugasi Minggu ke-0
N		9
Normal Parameters[a]	Mean	.0300
	Std. Deviation	.02000
Most Extreme Differences	Absolute	.175
	Positive	.175
	Negative	-.159
Kolmogorov-Smirnov Z		.524
Asymp. Sig. (2-tailed)		.946

a. Test distribution is Normal.

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

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

Oneway

```
[DataSet0]
```

Descriptives

Uji Sentrifugasi Minggu ke-0

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	3	.0100	.00000	.00000	.0100	.0100	.01	.01
Formula 2	3	.0300	.01000	.00577	.0052	.0548	.02	.04
Formula 3	3	.0500	.01732	.01000	.0070	.0930	.03	.06
Total	9	.0300	.02000	.00667	.0146	.0454	.01	.06

Test of Homogeneity of Variances

Uji Sentrifugasi Minggu ke-0

Levene Statistic	df1	df2	Sig.
6.000	2	6	.037

ANOVA

Uji Sentrifugasi Minggu ke-0

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.002	2	.001	9.000	.016
Within Groups	.001	6	.000		
Total	.003	8			

Post Hoc Tests

Multiple Comparisons

Uji Sentrifugasi Minggu ke-0

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.02000	.00943	.165	-.0489	.0089
	Formula 3	-.04000*	.00943	.013	-.0689	-.0111
Formula 2	Formula 1	.02000	.00943	.165	-.0089	.0489
	Formula 3	-.02000	.00943	.165	-.0489	.0089
Formula 3	Formula 1	.04000*	.00943	.013	.0111	.0689
	Formula 2	.02000	.00943	.165	-.0089	.0489

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

Homogeneous Subsets

Uji Sentrifugasi Minggu ke-0

Tukey HSD

Formula	N	Subset for alpha = 0.05	
		1	2
Formula 1	3	.0100	
Formula 2	3	.0300	.0300
Formula 3	3		.0500
Sig.		.165	.165

Means for groups in homogeneous subsets are displayed.

b. Minggu ke-1

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

  /MISSING ANALYSIS.
```

NPar Tests

```
[DataSet0]
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Sentrifugasi Minggu ke-1	9	.0467	.02500	.01	.08

One-Sample Kolmogorov-Smirnov Test

		Uji Sentrifugasi Minggu ke-1
N		9
Normal Parameters[a]	Mean	.0467
	Std. Deviation	.02500
Most Extreme Differences	Absolute	.192
	Positive	.192
	Negative	-.158
Kolmogorov-Smirnov Z		.576
Asymp. Sig. (2-tailed)		.895

a. Test distribution is Normal.

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

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

Oneway

```
[DataSet0]
```

Descriptives

Uji Sentrifugasi Minggu ke-1

	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	.0500	.02000	.01155	.0003	.0997	.03	.07
Formula 3	3	.0700	.01000	.00577	.0452	.0948	.06	.08
Total	9	.0467	.02500	.00833	.0274	.0659	.01	.08

Test of Homogeneity of Variances

Uji Sentrifugasi Minggu ke-1

Levene Statistic	df1	df2	Sig.
.667	2	6	.548

ANOVA

Uji Sentrifugasi Minggu ke-1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.004	2	.002	9.500	.014
Within Groups	.001	6	.000		
Total	.005	8			

Post Hoc Tests

Multiple Comparisons

Uji Sentrifugasi Minggu ke-1

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.03000	.01155	.090	-.0654	.0054
	Formula 3	-.05000*	.01155	.012	-.0854	-.0146
Formula 2	Formula 1	.03000	.01155	.090	-.0054	.0654
	Formula 3	-.02000	.01155	.269	-.0554	.0154
Formula 3	Formula 1	.05000*	.01155	.012	.0146	.0854
	Formula 2	.02000	.01155	.269	-.0154	.0554

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

Homogeneous Subsets

Uji Sentrifugasi Minggu ke-1

Tukey HSD

Formula	N	Subset for alpha = 0.05	
		1	2
Formula 1	3	.0200	
Formula 2	3	.0500	.0500
Formula 3	3		.0700
Sig.		.090	.269

Means for groups in homogeneous subsets are displayed.

c. Minggu ke-2

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

  /MISSING ANALYSIS.
```

NPar Tests

```
[DataSet0]
```

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Uji Sentrifugasi Minggu ke-2	9	.0733	.03041	.02	.12

One-Sample Kolmogorov-Smirnov Test

		Uji Sentrifugasi Minggu ke-2
N		9
Normal Parameters[a]	Mean	.0733
	Std. Deviation	.03041
Most Extreme Differences	Absolute	.142
	Positive	.086
	Negative	-.142
Kolmogorov-Smirnov Z		.427
Asymp. Sig. (2-tailed)		.993

a. Test distribution is Normal.

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

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

Oneway

```
[DataSet0]
```

Descriptives

Uji Sentrifugasi Minggu ke-2

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	3	.0400	.02000	.01155	-.0097	.0897	.02	.06
Formula 2	3	.0800	.01000	.00577	.0552	.1048	.07	.09
Formula 3	3	.1000	.02000	.01155	.0503	.1497	.08	.12
Total	9	.0733	.03041	.01014	.0500	.0967	.02	.12

Test of Homogeneity of Variances

Uji Sentrifugasi Minggu ke-2

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

ANOVA

Uji Sentrifugasi Minggu ke-2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.006	2	.003	9.333	.014
Within Groups	.002	6	.000		
Total	.007	8			

Post Hoc Tests

Multiple Comparisons

Uji Sentrifugasi Minggu ke-2

Tukey HSD

(I) Formula	(J) Formula	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.04000	.01414	.067	-.0834	.0034
	Formula 3	-.06000*	.01414	.013	-.1034	-.0166
Formula 2	Formula 1	.04000	.01414	.067	-.0034	.0834
	Formula 3	-.02000	.01414	.392	-.0634	.0234
Formula 3	Formula 1	.06000*	.01414	.013	.0166	.1034
	Formula 2	.02000	.01414	.392	-.0234	.0634

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

Homogeneous Subsets

Uji Sentrifugasi Minggu ke-2

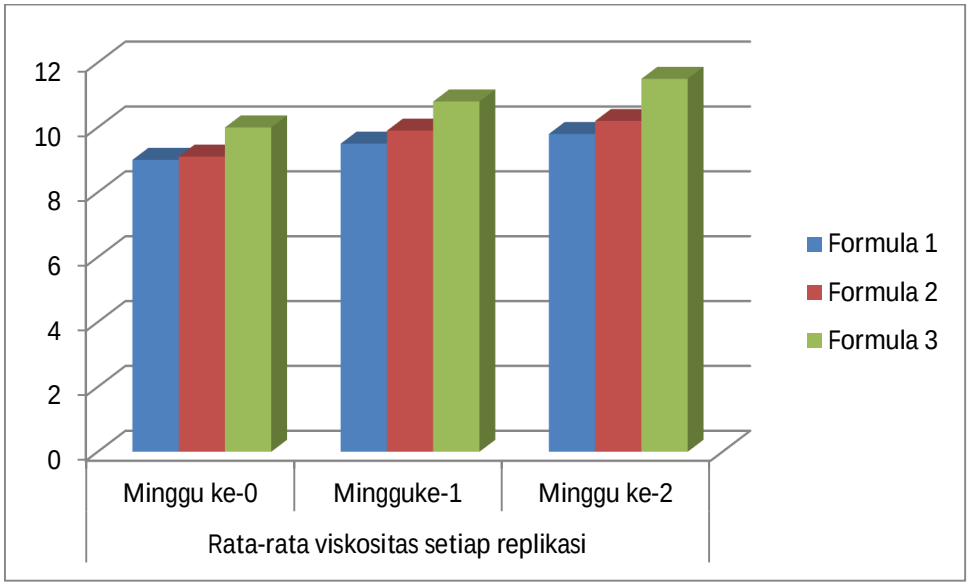
Tukey HSD

Formula	N	Subset for alpha = 0.05	
		1	2
Formula 1	3	.0400	
Formula 2	3	.0800	.0800
Formula 3	3		.1000
Sig.		.067	.392

Means for groups in homogeneous subsets are displayed.

Lampiran 9. Grafik Rata- rata Hasil Uji Viskositas dan Uji Sentrifugasi

a. Uji Viskositas



b. Ujii Sentrifugasi