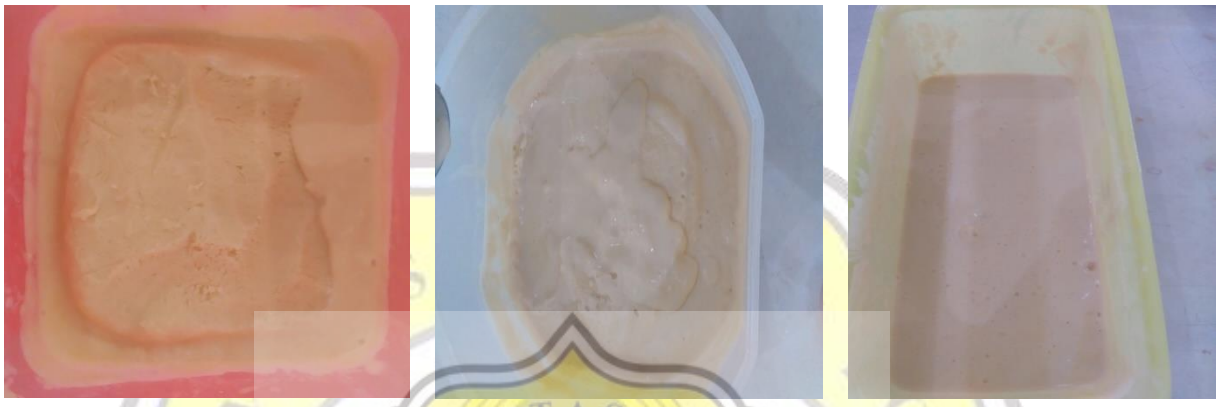
7. LAMPIRAN

Lampiran 1.

7.1.1. Produk Es Krim Oleoresin Jahe Merah Sebelum Penyimpanan



(a) (b) (c)

7.1.2. Produk Es Krim Oleoresin Jahe Merah Sesudah Penyimpanan

(a) (b) (c)

Keterangan :

(a) : penambahan sukrosa

(b) : penambahan gula aren

(c) : penambahan madu

Lampiran 2. Pengujian Normalitas

7.2.1. Pengujian Normalitas Umur Simpan Fresh

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
overrun	,356	9	,002	,655	9	,000
meltingrate	,121	9	,200*	,994	9	,999
timetomelt	,202	9	,200*	,890	9	,199
kadargula	,230	9	,185	,923	9	,415
totalpadatan	,196	9	,200*	,919	9	,383

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

a. Lilliefors Significance Correction

Keterangan :

Apabila hasil nilai signifikansi > 0,05 maka dapat dilanjutkan ke pengujian *One Way* ANOVA

7.2.2. Pngujian Normalitas Umur Simpan 7 Hari

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Overrun	,519	9	,000	,390	9	,000
MeltingRate	,291	9	,027	,815	9	,030
TimetoMelt	,385	9	,000	,725	9	,003
KadarGula	,219	9	,200*	,876	9	,143
TotalPadatan	,193	9	,200*	,944	9	,620

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

a. Lilliefors Significance Correction

Keterangan :

Apabila hasil nilai signifikansi > 0,05 maka dapat dilanjutkan ke pengujian *One Way* ANOVA

Lampiran 3. Pengujian *One Way* ANOVA

7.3.1. Pengujian *One Way* ANOVA Umur Simpan Fresh

7.3.1.1.*Melting Rate*

meltingrate

Duncan

GulaFresh	N	Subset for alpha = 0.05		
		1	2	3
madu fresh	3	,9933		
Gula aren fresh	3		1,1233	
sukrosa fresh	3			1,2600
Sig.		1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

7.3.1.2. *Time to Melt*

timetomelt

Duncan

GulaFresh	N	Subset for alpha = 0.05	
		1	2
madu fresh	3	7,4933	
sukrosa fresh	3		8,1567
Gula aren fresh	3		8,5933
Sig.		1,000	,055

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

7.3.1.3. Kadar Gula

kadargula

Duncan

GulaFresh	N	Subset for alpha = 0.05
		1
Gula aren fresh	3	63,4200
sukrosa fresh	3	63,8133
madu fresh	3	64,7667
Sig.		,056

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

7.3.1.4. Total Padatan

totalpadatan

Duncan

GulaFresh	N	Subset for alpha = 0.05	
		1	2
madu fresh	3	34,5867	
Gula aren fresh	3	35,3600	35,3600
sukrosa fresh	3		36,1867
Sig.		,074	,060

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

7.3.2. Pengujian *One Way* ANOVA Umur Simpan 7 Hari

7.3.2.1. Kadar Gula

KadarGula

Duncan

GulaPenyimpanan	N	Subset for alpha = 0.05		
		1	2	3
madu penyimpanan	3	13,0000		
gula aren penyimpanan	3		17,0667	
sukrosa penyimpanan	3			19,8667
Sig.		1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

7.3.2.2. Total Padatan

TotalPadatan

Duncan

GulaPenyimpanan	N	Subset for alpha = 0.05
		1
madu penyimpanan	3	36,8533
sukrosa penyimpanan	3	37,5133
gula aren penyimpanan	3	37,6467
Sig.		,448

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

Lampiran 4. Pengujian *Independent T-test*

7.4.1. Normalitas Data

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Overrun	,519	9	,000	,390	9	,000
MeltingRate	,291	9	,027	,815	9	,030
TimetoMelt	,385	9	,000	,725	9	,003
KadarGula	,219	9	,200*	,876	9	,143
TotalPadatan	,193	9	,200*	,944	9	,620

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

a. Lilliefors Significance Correction

7.4.1.1. Sukrosa Fresh & Gula Aren Fresh

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadargula	Equal variances assumed	16,000	,016	25,000	4	,000	1,66667	,06667	1,48157	1,85176
	Equal variances not assumed			25,000	2,000	,002	1,66667	,06667	1,37982	1,95351
totalpadatan	Equal variances assumed	2,295	,204	2,011	4	,115	,82667	,41107	-,31464	1,96798
	Equal variances not assumed			2,011	2,912	,141	,82667	,41107	-,50420	2,15753

7.4.1.2. Sukrosa Fresh & Madu Fresh

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
totalpadatan	Equal variances assumed	,281	,624	6,796	4	,002	1,60000	,23542	,94637	2,25363
	Equal variances not assumed			6,796	3,867	,003	1,60000	,23542	,93743	2,26257

7.4.1.3. Sukrosa Fresh & Sukrosa Penyimpanan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadargula	Equal variances assumed	16,000	,016	-10,429	4	,000	-4,86667	,46667	-6,16234	-3,57099
	Equal variances not assumed			-10,429	2,000	,009	-4,86667	,46667	-6,87457	-2,85876
totalpadatan	Equal variances assumed	6,236	,067	-2,112	4	,102	-1,32667	,62808	-3,07051	,41717
	Equal variances not assumed			-2,112	2,360	,149	-1,32667	,62808	-3,66983	1,01650

7.4.1.4. Sukrosa Fresh & Gula Aren Penyimpanan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadargula	Equal variances assumed	16,000	,016	-7,750	4	,001	-2,06667	,26667	-2,80705	-1,32628
	Equal variances not assumed			-7,750	2,000	,016	-2,06667	,26667	-3,21404	-,91929
totalpadatan	Equal variances assumed	5,230	,084	-1,809	4	,145	-1,46000	,80686	-3,70020	,78020
	Equal variances not assumed			-1,809	2,212	,200	-1,46000	,80686	-4,63158	1,71158

7.4.1.5. Sukrosa Fresh & Madu Penyimpanan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
totalpadatan	Equal variances assumed	3,490	,135	-1,054	4	,351	-,66667	,63253	-2,42284	1,08951
	Equal variances not assumed			-1,054	2,355	,388	-,66667	,63253	-3,03059	1,69725

7.4.1.6. Gula Aren Fresh & Madu Fresh

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadargula	Equal variances assumed	16,000	,016	11,000	4	,000	,73333	,06667	,54824	,91843
	Equal variances not assumed			11,000	2,000	,008	,73333	,06667	,44649	1,02018
totalpadatan	Equal variances assumed	3,296	,144	1,941	4	,124	,77333	,39839	-,33276	1,87943
	Equal variances not assumed			1,941	2,646	,160	,77333	,39839	-,59621	2,14287

7.4.1.7.Gula Aren Fresh & Sukrosa Penyimpanan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadargula	Equal variances assumed	11,520	,027	-13,859	4	,000	-6,53333	,47140	-7,84216	-5,22450
	Equal variances not assumed			-13,859	2,082	,004	-6,53333	,47140	-8,48730	-4,57936
totalpadatan	Equal variances assumed	1,506	,287	-3,052	4	,038	-2,15333	,70553	-4,11221	-,19446
	Equal variances not assumed			-3,052	3,319	,048	-2,15333	,70553	-4,28143	-,02524

7.4.1.8. Gula Aren Fresh & Gula Aren Penyimpanan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadargula	Equal variances assumed	8,471	,044	-13,582	4	,000	-3,73333	,27487	-4,49651	-2,97016
	Equal variances not assumed			-13,582	2,249	,003	-3,73333	,27487	-4,79898	-2,66769
totalpadatan	Equal variances assumed	2,149	,217	-2,633	4	,058	-2,28667	,86851	-4,69804	,12471
	Equal variances not assumed			-2,633	2,840	,083	-2,28667	,86851	-5,14079	,56746

7.4.1.9. Gula Aren Fresh & Madu Penyimpanan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadargula	Equal variances assumed	16,000	,016	5,000	4	,007	,33333	,06667	,14824	,51843
	Equal variances not assumed			5,000	2,000	,038	,33333	,06667	,04649	,62018
totalpadatan	Equal variances assumed	,843	,411	-2,105	4	,103	-1,49333	,70949	-3,46320	,47653
	Equal variances not assumed			-2,105	3,304	,118	-1,49333	,70949	-3,63828	,65161

7.4.1.10. Madu Fresh & Sukrosa Penyimpanan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadargula	Equal variances assumed	16,000	,016	-15,571	4	,000	-7,26667	,46667	-8,56234	-5,97099
	Equal variances not assumed			-15,571	2,000	,004	-7,26667	,46667	-9,27457	-5,25876
totalpadatan	Equal variances assumed	7,344	,054	-4,722	4	,009	-2,92667	,61986	-4,64766	-1,20567
	Equal variances not assumed			-4,722	2,249	,033	-2,92667	,61986	-5,33000	-,52333

7.4.1.11. Madu Fresh & Gula Aren Penyimpanan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadargula	Equal variances assumed	16,000	,016	-16,750	4	,000	-4,46667	,26667	-5,20705	-3,72628
	Equal variances not assumed			-16,750	2,000	,004	-4,46667	,26667	-5,61404	-3,31929
totalpadatan	Equal variances assumed	5,953	,071	-3,823	4	,019	-3,06000	,80047	-5,28247	-,83753
	Equal variances not assumed			-3,823	2,146	,056	-3,06000	,80047	-6,28921	,16921

7.4.1.12. Madu Fresh & Madu Penyimpanan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
totalpadatan	Equal variances assumed	4,206	,110	-3,630	4	,022	-2,26667	,62436	-4,00016	-,53317
	Equal variances not assumed			-3,630	2,245	,057	-2,26667	,62436	-4,69079	,15746

7.4.1.13. Sukrosa Penyimpanan & Gula Aren Penyimpanan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadargula	Equal variances assumed	2,215	,211	5,209	4	,006	2,80000	,53748	1,30771	4,29229
	Equal variances not assumed			5,209	3,180	,012	2,80000	,53748	1,14305	4,45695

7.4.1.14. Sukrosa Penyimpanan & Madu Penyimpanan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadargula	Equal variances assumed	16,000	,016	14,714	4	,000	6,86667	,46667	5,57099	8,16234
	Equal variances not assumed			14,714	2,000	,005	6,86667	,46667	4,85876	8,87457
totalpadatan	Equal variances assumed	,008	,933	,773	4	,483	,66000	,85375	-1,71039	3,03039
	Equal variances not assumed			,773	4,000	,483	,66000	,85375	-1,71044	3,03044

7.4.1.15. Gula Aren Penyimpanan & Madu Penyimpanan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kadargula	Equal variances assumed	16,000	,016	15,250	4	,000	4,06667	,26667	3,32628	4,80705
	Equal variances not assumed			15,250	2,000	,004	4,06667	,26667	2,91929	5,21404
totalpadatan	Equal variances assumed	,324	,600	,799	4	,469	,79333	,99268	-1,96280	3,54947
	Equal variances not assumed			,799	3,756	,472	,79333	,99268	-2,03473	3,62140

Lampiran 5. Pengujian Organoleptik dengan Kruskal Wallis

7.5.1. Analisa Sensori Umur Simpan Fresh

Test Statistics[a,b]

	overall	rasa	warna	aroma	tekstur
Chi-Square	12,783	24,425	3,660	,740	3,421
df	2	2	2	2	2
Asymp. Sig.	,002	,000	,160	,691	,181

a. Kruskal Wallis Test

b. Grouping Variable: sampelfresh

7.5.2. Analisa Sensori Umur Simpan 7 Hari

Test Statistics[a,b]

	overall	rasa	warna	aroma	tekstur
Chi-Square	6,277	14,971	,500	1,003	15,665
df	2	2	2	2	2
Asymp. Sig.	,043	,001	,779	,606	,000

a. Kruskal Wallis Test

b. Grouping Variable: sampel

Lampiran 6. Pengujian Mann Whitney

7.6.1. Pengujian Mann Whitnay Umur Simpan Fresh

7.6.1.1. Sukrosa & Gula Aren

Test Statistics[a]

	overall	rasa
Mann-Whitney U	345,000	325,500
Wilcoxon W	810,000	790,500
Z	-1,658	-1,978
Asymp. Sig. (2-tailed)	,097	,048

a. Grouping Variable: sampel

7.6.1.2. Sukrosa & Madu

Test Statistics[a]

	overall	rasa
Mann-Whitney U	319,500	237,000
Wilcoxon W	784,500	702,000
Z	-2,048	-3,284
Asymp. Sig. (2-tailed)	,041	,001

a. Grouping Variable: sampel

7.6.1.3. Gula Aren & Madu

Test Statistics[a]

	overall	rasa
Mann-Whitney U	227,000	147,000
Wilcoxon W	692,000	612,000
Z	-3,485	-4,656
Asymp. Sig. (2-tailed)	,000	,000

a. Grouping Variable: sampel

7.6.2. Pengujian Mann Whitney Umur Simpan 7 Hari

7.6.2.1. Sukrosa & Gula Aren

Test Statistics[a]

	overall	rasa	tekstur
Mann-Whitney U	334,500	450,000	285,000
Wilcoxon W	799,500	915,000	750,000
Z	-1,811	,000	-2,567
Asymp. Sig. (2-tailed)	,070	1,000	,010

a. Grouping Variable: sampel

7.6.2.2. Sukrosa & Madu

Test Statistics[a]

	overall	rasa	tekstur
Mann-Whitney U	415,500	247,000	208,000
Wilcoxon W	880,500	712,000	673,000
Z	-,546	-3,096	-3,722
Asymp. Sig. (2-tailed)	,585	,002	,000

a. Grouping Variable: sampel

7.6.2.3. Gula Aren & Madu

Test Statistics[a]

	overall	rasa	tekstur
Mann-Whitney U	297,000	217,500	340,000
Wilcoxon W	762,000	682,500	805,000
Z	-2,402	-3,567	-1,731
Asymp. Sig. (2-tailed)	,016	,000	,083

a. Grouping Variable: sampel

Lampiran 7. Perhitungan Angka Total Uji Organoleptik

7.6.3. Uji Organoleptik Sebelum Penyimpanan

Sampel	Parameter				
	Overall	Rasa	Warna	Aroma	Tekstur
Sukrosa	116	116	115	103	121
Gula Aren	126	129	103	105	108
Madu	100	90	111	104	109

7.6.4. Uji Organoleptik Sesudah Penyimpanan

Sampel	Parameter				
	Overall	Rasa	Warna	Aroma	Tekstur
Sukrosa	114	118	111	105	96
Gula Aren	123	120	106	107	116
Madu	107	91	111	102	126

Report #10279054

43 PENDAHULUAN Latar Belakang Jahe merupakan tanaman obat yang paling banyak dibudidayakan di Indonesia. Di Indonesia memiliki 3 jenis jahe yang biasa diperdagangkan yakni jahe gajah, jahe emprit, dan jahe merah (Pribadi, 2013). Apabila dibandingkan dengan jenis jahe lainnya, jahe merah merupakan jenis yang paling banyak digunakan untuk obat karena mengandung gingerol, minyak atsiri, dan minyak oleoresin paling tinggi Rosevicka et al., (2007). Pengolahan jahe untuk dijadikan sebuah produk biasanya hanya dalam bentuk jahe segar dan jahe kering, kemudian dibubukkan dan diolah. Menurut Handayani dkk., (2015) sebagian besar ekspor jahe masih dalam bentuk bahan mentah (rimpang jahe segar) dan setengah jadi (jahe kering). Permasalahan lebih banyak muncul pada saat pendistribusian seperti terjadi pengriputan pada jahe segar, perkecambahan, kontaminasi jamur akibat sanitasi yang kurang diperhatikan pada saat pengepakan. Oleh karena itu, dalam penelitian ini rimpang jahe merah segar diolah dengan cara mengekstrak minyak oleoresin dan dijadikan suatu flavor, serta dapat menekan pencemaran mikroba (kontaminasi jamur). Penyimpanan lebih hemat, lebih ringan dan efisien dalam pengangkutan untuk pendistribusian juga merupakan keuntungan dari pengolahan tersebut. Untuk mengambil kandungan minyak oleoresin pada jahe