

7. LAMPIRAN

Lampiran 1. Tabel Uji SPSS Normalitas

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Moisture	.111	54	.094	.975	54	.308
Warna_L	.079	54	.200 [*]	.960	54	.070
Warna_a	.075	54	.200 [*]	.980	54	.519
Warna_b	.082	54	.200 [*]	.968	54	.164
inverse_ln_aw	.101	54	.200 [*]	.957	54	.050

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

a. Lilliefors Significance Correction

Berdasarkan tabel diatas dapat dilihat bahwa nilai signifikansi $p > 0,05$ yang artinya memenuhi syarat normalitas.

Homogenitas

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
Warna_b	4.236	8	45	.001
moisture	2.142	8	45	.051
Warna_L	.666	8	45	.718
Warna_a	1.748	8	45	.113
Aw_In	1.476	8	45	.193

Berdasarkan tabel diatas dapat dilihat bahwa semua memenuhi syarat homogenitas ($p > 0,05$), kecuali pada warna_b ($p < 0,05$) yang tidak memenuhi syarat homogenitas.

One way ANOVA

Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
					Lower Bound	Upper Bound			
Warna_b	7gram,4%	6	20.4317	.53214	.21725	19.8732	20.9901	19.69	21.22
	7 gram, 6%	6	19.4967	.33518	.13684	19.1449	19.8484	18.94	19.86
	7gram, 8%	6	20.8450	1.24193	.50702	19.5417	22.1483	19.14	22.50
	10gram,4%	6	19.8117	.78987	.32246	18.9827	20.6406	19.13	21.09
	10gram,6%	6	20.3850	.30218	.12336	20.0679	20.7021	20.00	20.88
	10gram,8%	6	20.6883	.52312	.21356	20.1394	21.2373	19.80	21.21
	13gram,4%	6	19.4600	.57359	.23417	18.8581	20.0619	18.80	20.19
	13gram,6%	6	19.4800	.22891	.09345	19.2398	19.7202	19.19	19.75
	13gram,8%	6	20.8433	.44729	.18260	20.3739	21.3127	20.43	21.31
	Total	54	20.1602	.80870	.11005	19.9395	20.3809	18.80	22.50
moisture	7gram,4%	6	5.0700	1.06008	.43277	3.9575	6.1825	3.78	6.38
	7 gram, 6%	6	5.2267	1.08627	.44347	4.0867	6.3666	4.16	6.82
	7gram, 8%	6	4.4050	.52523	.21443	3.8538	4.9562	3.66	5.17
	10gram,4%	6	5.0800	.63624	.25974	4.4123	5.7477	4.32	6.05
	10gram,6%	6	5.2500	.65195	.26616	4.5658	5.9342	4.48	6.17
	10gram,8%	6	5.4100	1.00134	.40879	4.3592	6.4608	4.51	6.77
	13gram,4%	6	5.6317	.53731	.21935	5.0678	6.1955	4.99	6.25
	13gram,6%	6	5.9817	.66004	.26946	5.2890	6.6743	5.34	7.01
	13gram,8%	6	5.9417	.56244	.22961	5.3514	6.5319	5.37	6.65
	Total	54	5.3330	.85404	.11622	5.0999	5.5661	3.66	7.01
Warna_L	7gram,4%	6	83.9050	1.31704	.53768	82.5229	85.2871	82.56	86.45
	7 gram, 6%	6	83.3400	1.74751	.71342	81.5061	85.1739	80.40	84.91
	7gram, 8%	6	79.7367	2.90507	1.18599	76.6880	82.7853	74.74	83.01
	10gram,4%	6	84.9617	2.37901	.97123	82.4650	87.4583	80.56	87.06
	10gram,6%	6	82.1367	1.24283	.50738	80.8324	83.4409	79.99	83.47
	10gram,8%	6	83.1383	1.54421	.63042	81.5178	84.7589	80.89	84.77
	13gram,4%	6	86.5917	.98219	.40098	85.5609	87.6224	85.42	88.31
	13gram,6%	6	86.7517	1.71368	.69961	84.9533	88.5501	84.12	89.37
	13gram,8%	6	85.2317	1.64917	.67327	83.5010	86.9624	81.94	86.35
	Total	54	83.9770	2.69364	.36656	83.2418	84.7123	74.74	89.37
Warna_a	7gram,4%	6	-1.6083	.34319	.14011	-1.9685	-1.2482	-1.93	-1.15
	7 gram, 6%	6	-1.4050	.21852	.08921	-1.6343	-1.1757	-1.84	-1.23
	7gram, 8%	6	-1.5883	.26746	.10919	-1.8690	-1.3076	-1.78	-1.09
	10gram,4%	6	-1.4467	.14720	.06009	-1.6011	-1.2922	-1.61	-1.17
	10gram,6%	6	-1.5383	.21085	.08608	-1.7596	-1.3171	-1.87	-1.29

	10gram,8%	6	-1.5400	.19058	.07780	-1.7400	-1.3400	-1.82	-1.29
	13gram,4%	6	-1.4733	.11183	.04566	-1.5907	-1.3560	-1.66	-1.35
	13gram,6%	6	-1.3783	.20034	.08179	-1.5886	-1.1681	-1.56	-1.08
	13gram,8%	6	-1.6050	.16208	.06617	-1.7751	-1.4349	-1.83	-1.36
	Total	54	-1.5093	.21516	.02928	-1.5680	-1.4505	-1.93	-1.08
	7gram,4%	6	-1.5580	.20382	.08321	-1.7719	-1.3441	-1.75	-1.32
	7 gram, 6%	6	-1.4941	.19950	.08145	-1.7035	-1.2848	-1.68	-1.30
	7gram, 8%	6	-1.4963	.19261	.07863	-1.6984	-1.2941	-1.75	-1.25
	10gram,4%	6	-1.3219	.15612	.06374	-1.4858	-1.1581	-1.46	-1.11
Aw_In	10gram,6%	6	-1.3222	.16519	.06744	-1.4956	-1.1489	-1.54	-1.11
	10gram,8%	6	-1.3668	.19381	.07912	-1.5702	-1.1634	-1.52	-1.10
	13gram,4%	6	-1.2445	.12614	.05150	-1.3768	-1.1121	-1.35	-1.06
	13gram,6%	6	-1.2924	.12850	.05246	-1.4273	-1.1576	-1.49	-1.15
	13gram,8%	6	-1.3342	.20782	.08484	-1.5523	-1.1161	-1.52	-1.08
	Total	54	-1.3812	.19308	.02627	-1.4339	-1.3285	-1.75	-1.06

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Warna_b	Between Gramoups	17.121	8	2.140	5.490	.000
	Within Gramoups	17.541	45	.390		
	Total	34.662	53			
moisture	Between Gramoups	11.394	8	1.424	2.351	.033
	Within Gramoups	27.264	45	.606		
	Total	38.658	53			
Warna_L	Between Gramoups	237.363	8	29.670	9.071	.000
	Within Gramoups	147.189	45	3.271		
	Total	384.553	53			
Warna_a	Between Gramoups	.361	8	.045	.972	.470
	Within Gramoups	2.092	45	.046		
	Total	2.454	53			
Aw_In	Between Gramoups	.559	8	.070	2.222	.043
	Within Gramoups	1.416	45	.031		
	Total	1.976	53			

Berdasarkan tabel diatas nilai pada warna L, warna b, *water activity* dan *moisture content* menunjukkan signifikansi $\alpha < 0,05$ yang artinya H_0 ditolak atau terdapat perbedaan yang signifikan. Sedangkan untuk warna a menunjukkan signifikansi $\alpha > 0,05$ yang artinya H_0 diterima atau tidak terdapat perbedaan yang signifikan.

Post hoc (antar kolom baris)

moisture

Duncan

kombinasi_1	N	Subset for alpha = 0.05
		1
7 gram 8%	6	4.4050
7 gram 4%	6	5.0700
7 gram 6%	6	5.2267
Sig.		.165

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

ln_aw

Duncan

kombinasi_1	N	Subset for alpha = 0.05
		1
7 gram 4%	6	-1.55803
7 gram 8%	6	-1.49625
7 gram 6%	6	-1.49411
Sig.		.606

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_L

Duncan

kombinasi_1	N	Subset for alpha = 0.05	
		1	2
7 gram 8%	6	79.7367	
7 gram 6%	6		83.3400
7 gram 4%	6		83.9050
Sig.		1.000	.648

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_a

Duncan

kombinasi_1	N	Subset for alpha = 0.05	
		1	2
7 gram 4%	6	-1.6083	
7 gram 8%	6	-1.5883	
7 gram 6%	6	-1.4050	
Sig.		.253	

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_b

Duncan

kombinasi_1	N	Subset for alpha = 0.05	
		1	2
7 gram 6%	6	19.4967	
7 gram 4%	6	20.4317	20.4317
7 gram 8%	6		20.8450
Sig.		.062	.387

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

moisture

Duncan

kombinasi_2	N	Subset for alpha = 0.05
		1
10gram 4%	6	5.0800
10 gram 6%	6	5.2500
10 gram 8%	6	5.4100
Sig.		.499

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

In_aw2

Duncan

kombinasi_2	N	Subset for alpha = 0.05
		1
10 gram 8%	6	-1.36678
10 gram 6%	6	-1.32224
10 gram 4%	6	-1.32194
Sig.		.676

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_L

Duncan

kombinasi_2	N	Subset for alpha = 0.05	
		1	2
10 gram 6%	6	82.1367	
10 gram 8%	6	83.1383	83.1383
10gram 4%	6		84.9617
Sig.		.347	.098

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_a

Duncan

kombinasi_2	N	Subset for alpha = 0.05
		1
10 gram 8%	6	-1.5400
10 gram 6%	6	-1.5383
10gram 4%	6	-1.4467
Sig.		.420

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_b

Duncan

kombinasi_2	N	Subset for alpha = 0.05	
		1	2
10gram 4%	6	19.8117	
10 gram 6%	6	20.3850	20.3850
10 gram 8%	6		20.6883
Sig.		.104	.375

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

moisture

Duncan

kombinasi_3	N	Subset for alpha = 0.05
		1
13gram 4%	6	5.6317
13 gram 8%	6	5.9417
13 gram 6%	6	5.9817
Sig.		.345

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

In_aw3

Duncan

kombinasi_3	N	Subset for alpha = 0.05
		1
13 gram 8%	6	-1.33420
13 gram 6%	6	-1.29244
13 gram 4%	6	-1.24447
Sig.		.368

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_L

Duncan

kombinasi_3	N	Subset for alpha = 0.05
		1
13 gram 8%	6	85.2317
13gram 4%	6	86.5917
13 gram 6%	6	86.7517
Sig.		.112

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_a

Duncan

kombinasi_3	N	Subset for alpha = 0.05	
		1	2
13 gram 8%	6	-1.6050	
13gram 4%	6	-1.4733	-1.4733
13 gram 6%	6		-1.3783
Sig.		.180	.326

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_b

Duncan

kombinasi_3	N	Subset for alpha = 0.05	
		1	2
13gram 4%	6	19.4600	
13 gram 6%	6	19.4800	
13 gram 8%	6		20.8433
Sig.		.938	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

moisture

Duncan

kombinasi_4	N	Subset for alpha = 0.05	
		1	2
7 gram 4%	6	5.0700	
10 gram 4%	6	5.0800	
13 gram 4%	6	5.6317	
Sig.		.254	

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

In_aw4

Duncan

kombinasi_4	N	Subset for alpha = 0.05	
		1	2
7 gram 4%	6	-1.5580	
10 gram 4%	6		-1.3219
13 gram 4%	6		-1.2445
Sig.		1.000	.429

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_L

Duncan

kombinasi_4	N	Subset for alpha = 0.05	
		1	2
7 gram 4%	6	83.9050	
10 gram 4%	6	84.9617	84.9617
13 gram 4%	6		86.5917
Sig.		.290	.111

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_a

Duncan

kombinasi_4	N	Subset for alpha = 0.05
		1
7 gram 4%	6	-1.6083
13 gram 4%	6	-1.4733
10 gram 4%	6	-1.4467
Sig.		.256

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_b

Duncan

kombinasi_4	N	Subset for alpha = 0.05	
		1	2
13 gram 4%	6	19.4600	
10 gram 4%	6	19.8117	19.8117
7 gram 4%	6		20.4317
Sig.		.358	.115

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

moisture

Duncan

kombinasi_5	N	Subset for alpha = 0.05	
		1	
7 gram 6%	6	5.2267	
10 gram 6%	6	5.2500	
13 gram 6%	6	5.9817	
Sig.			.153

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

In_aw5

Duncan

kombinasi_5	N	Subset for alpha = 0.05	
		1	
7 gram 6%	6	-1.49411	
10gram 6%	6	-1.32224	
13gram 6%	6	-1.29244	
Sig.			.065

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_L

Duncan

kombinasi_5	N	Subset for alpha = 0.05	
		1	2
10 gram 6%	6	82.1367	
7 gram 6%	6	83.3400	
13 gram 6%	6		86.7517
Sig.		.208	1.000

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_a

Duncan

kombinasi_5	N	Subset for alpha = 0.05	
		1	
10 gram 6%	6	-1.5383	
7 gram 6%	6	-1.4050	
13 gram 6%	6	-1.3783	
Sig.			.230

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_b

Duncan

kombinasi_5	N	Subset for alpha = 0.05	
		1	2
13 gram 6%	6	19.4800	
7 gram 6%	6	19.4967	
10 gram 6%	6		20.3850
Sig.		.923	1.000

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

moisture

Duncan

kombinasi_6	N	Subset for alpha = 0.05	
		1	2
7 gram 8%	6	4.4050	
10 gram 8%	6		5.4100
13 gram 8%	6		5.9417
Sig.		1.000	.226

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

In_aw6

Duncan

kombinasi_6	N	Subset for alpha = 0.05
		1
7 gram 8%	6	-1.4963
10 gram 8%	6	-1.3668
13 gram 8%	6	-1.3342
Sig.		.199

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_L

Duncan

kombinasi_6	N	Subset for alpha = 0.05	
		1	2
7 gram 8%	6	79.7367	
10 gram 8%	6		83.1383
13 gram 8%	6		85.2317
Sig.		1.000	.109

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_a

Duncan

kombinasi_6	N	Subset for alpha = 0.05
		1
13 gram 8%	6	-1.6050
7 gram 8%	6	-1.5883

10 gram 8%	6	-1.5400
Sig.		.622

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

warna_b

Duncan

kombinasi_6	N	Subset for alpha = 0.05
		1
10 gram 8%	6	20.6883
13 gram 8%	6	20.8433
7 gram 8%	6	20.8450
Sig.		.758

Means for gramoups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

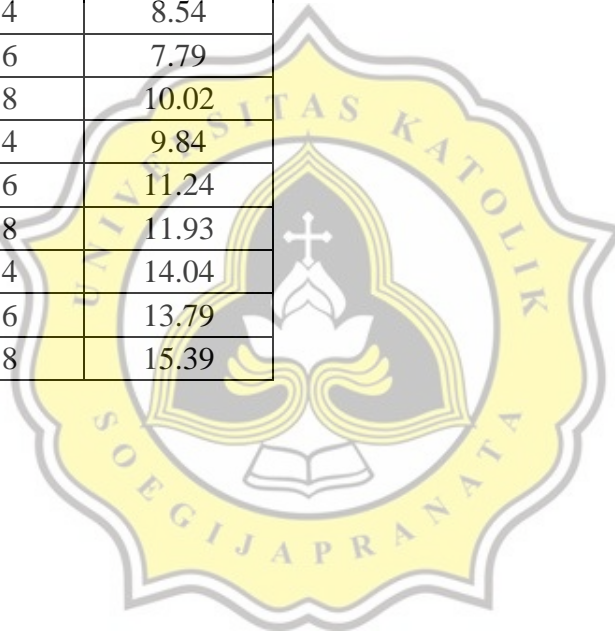


Lampiran 2. Tabel Absorbansi Aktivitas Antioksidan

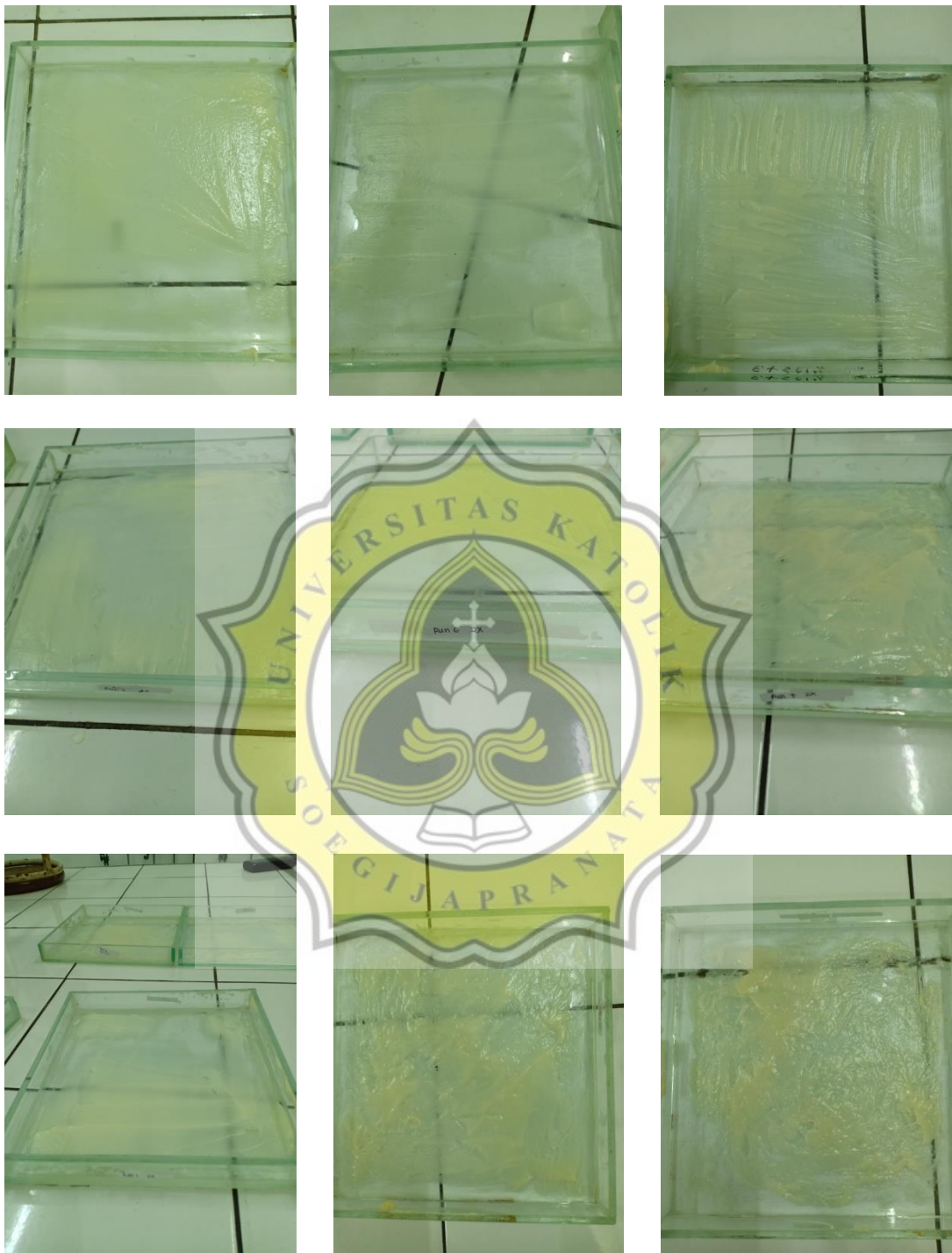
	Gum arab	Tween 80	Ulangan	Kontrol DPPH	Absorbansi 1	Absorbansi 2	Absorbansi 3	Rata- Rata Absorbansi
batch 1	7	4%	1	0,6353	0.0721	0.0722	0.0721	0.0721
			2	0,5701	0.0343	0.0343	0.0344	0.0343
			3	0,5701	0.0317	0.0317	0.0316	0.0317
	7	6%	1	0,6353	0.0823	0.0832	0.0821	0.0825
			2	0,5701	0.0393	0.0397	0.0397	0.0396
			3	0,5701	0.0337	0.0338	0.0336	0.0337
	7	8%	1	0,5701	0.0488	0.0489	0.0486	0.0488
			2	0,5701	0.0411	0.041	0.0409	0.0410
			3	0,5701	0.0477	0.0478	0.0474	0.0476
	10	4%	1	0,5701	0.0397	0.0398	0.0398	0.0398
			2	0,5701	0.0292	0.0291	0.0291	0.0291
			3	0,5701	0.0274	0.0276	0.0274	0.0275
	10	6%	1	0,6353	0.0726	0.0725	0.0724	0.0725
			2	0,5701	0.0378	0.0377	0.038	0.0378
			3	0,5701	0.0523	0.0526	0.0525	0.0525
	10	8%	1	0,6353	0.0868	0.0867	0.0867	0.0867
			2	0,5701	0.0277	0.0277	0.0275	0.0276
			3	0,5701	0.0269	0.0271	0.0274	0.0271
	13	4%	1	0,6353	0.0812	0.0814	0.0812	0.0813
			2	0,5701	0.0257	0.0257	0.0257	0.0257
			3	0,5701	0.025	0.025	0.025	0.0250
13	6%	1	0,6353	0.082	0.0821	0.0821	0.0821	
		2	0,5701	0.0304	0.0303	0.0301	0.0303	
		3	0,5701	0.0322	0.0323	0.0321	0.0322	
13	8%	1	0,6353	0.0831	0.0833	0.0835	0.0833	
		2	0,5701	0.0373	0.0372	0.0373	0.0373	
		3	0,5701	0.0318	0.0321	0.0319	0.0319	
batch 2	7	4%	1	0,3315	0.0306	0.0305	0.0305	0.0305
			2	0,3315	0.0279	0.0279	0.0281	0.0280
			3	0,3315	0.0284	0.0285	0.0285	0.0285
	7	6%	1	0,3315	0.028	0.0278	0.0281	0.0280
			2	0,3315	0.0283	0.0282	0.0282	0.0282
			3	0,3315	0.0281	0.0281	0.0279	0.0280
	7	8%	1	0,3315	0.0279	0.0276	0.0279	0.0278
			2	0,3315	0.0282	0.0283	0.0285	0.0283
			3	0,3315	0.0279	0.0276	0.0277	0.0277
	10	4%	1	0,3315	0.0276	0.0278	0.0277	0.0277
			2	0,3315	0.0272	0.0274	0.0275	0.0274
			3	0,3315	0.0279	0.0279	0.0283	0.0280
	10	6%	1	0,3315	0.0275	0.0277	0.0279	0.0277
			2	0,3315	0.0283	0.0283	0.0282	0.0283
			3	0,3315	0.0279	0.028	0.0283	0.0281
	10	8%	1	0,3315	0.0292	0.0292	0.0295	0.0293
			2	0,3315	0.0288	0.0286	0.0289	0.0288
			3	0,3315	0.0281	0.0283	0.0283	0.0282
	13	4%	1	0,3315	0.0287	0.0286	0.028	0.0284
			2	0,3315	0.0289	0.0286	0.029	0.0288
			3	0,3315	0.0273	0.0275	0.0273	0.0274
	13	6%	1	0,3315	0.0289	0.0289	0.0288	0.0289
			2	0,3315	0.0283	0.0285	0.0283	0.0284
			3	0,3315	0.0281	0.0279	0.028	0.0280
	13	8%	1	0,3315	0.028	0.0281	0.028	0.0280
			2	0,3315	0.0277	0.0276	0.0278	0.0277
			3	0,3315	0.0305	0.0307	0.0303	0.0305

Lampiran 3. Hasil Rendemen Enkapsulat *Butter* Pala

	Gum Arab (gram)	<i>Tween</i> 80 (%)	Rendemen Enkapsulat <i>Butter</i> Pala (gram)
<i>Batch 1</i>	7	4	7.58
	7	6	7.6
	7	8	8.95
	10	4	9.86
	10	6	11.1
	10	8	10.88
	13	4	11.92
	13	6	15.69
	13	8	13.11
<i>Batch 2</i>	7	4	8.54
	7	6	7.79
	7	8	10.02
	10	4	9.84
	10	6	11.24
	10	8	11.93
	13	4	14.04
	13	6	13.79
	13	8	15.39

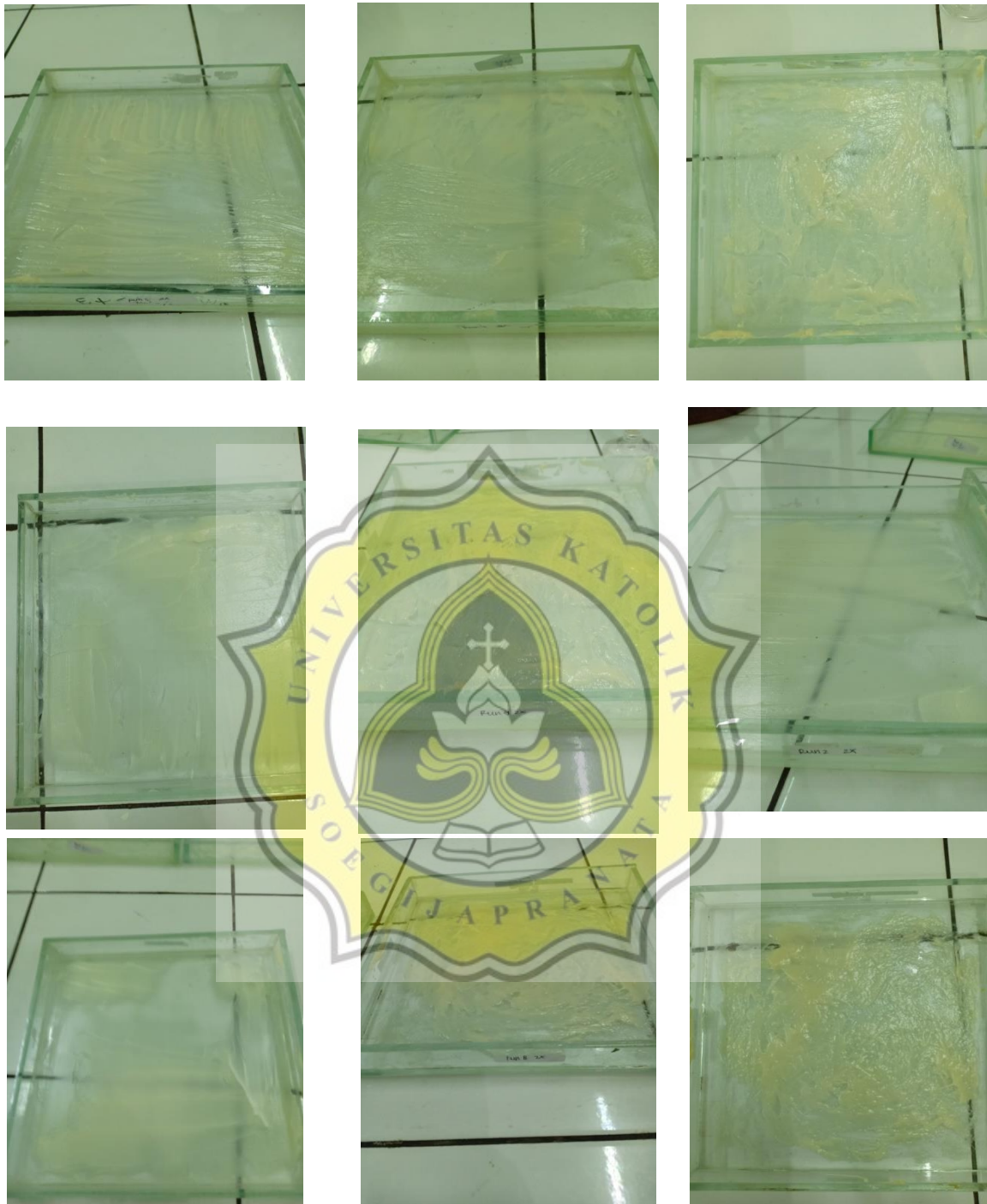


Lampiran 4. Foto Kegiatan

Gambar 9. Adonan Enkapsulat *Butter* Pala Sebelum Pengeringan (*Batch* 1)



Gambar 10. Adonan Kering Setelah Pengeringan (*Batch 1*)



Gambar 11. Adonan Enkapsulat *Butter Pala* Sebelum Pengeringan (*Batch 2*)



Gambar 12. Adonan Kering Enkapsulat *Butter* Pala (*Batch* 2)



Gambar 13. Pala, *Butter* Pala, Enkapsulat *Butter* Pala





7.95% PLAGIARISM
APPROXIMATELY

Report #10264612

PENDAHULUAN Latar Belakang Tanaman pala (*Myristica fragrans* Houtt.) adalah tanaman yang berasal asli dari Indonesia ADDIN (Nurdjannah, 2007). Tanaman ini telah dikenal sejak abad ke-18 dan banyak dihasilkan di kepulauan Maluku dan sekitarnya. Indonesia merupakan produsen utama dan pemasok kebutuhan pala sebesar 80% di dunia. Pala menjadi salah satu komoditas yang bernilai ekonomi tinggi dan dapat dilakukan pengolahan menjadi minyak atsiri, oleoresin pala, dan butter pala ADDIN (Rodianawati et al., 2015). Biji pala dan fuli merupakan bagian dari pala yang memiliki kandungan minyak tertinggi ADDIN (Marzuki et al., 2014). Oleoresin mudah mengalami kerusakan akibat oksigen, air, cahaya, dan suhu yang tinggi, sehingga memiliki umur simpan yang pendek apabila disimpan pada keadaan yang kurang tepat ADDIN (Adamiec & Kalemba, 2007). Oleoresin dan butter dapat dilakukan ekstraksi dengan pelarut yang berbeda ADDIN (Rema & Krishnamoorthy, 2012). Butter pala didapatkan dengan ekstraksi menggunakan Ultrasound Assisted Extraction. Ultrasound Assisted Extraction (UAE) adalah salah satu ekstraksi yang menggunakan pelarut organik dengan bantuan gelombang ultrasonik. Kelebihan dari ekstraksi dengan bantuan gelombang ultrasonik dibandingkan dengan jenis ekstraksi lainnya yaitu energi yang digunakan lebih kecil dan waktu ekstraksi yang singkat ADDIN (Soni et al.,