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LAMPIRAN

Lampiran 1. Hasil Pengujian Kadar Air Enkapsulat Antosianin Ubi Jalar Ungu

Lampiran 1a. Hasil Pengamatan Kadar Air Enkapsuat Antosianin Ubi Jalar Ungu

Kadar Air (%)					
Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**	**Ulangan I**	**Ulangan II**	**Rata-Rata**	**SD**
0	**0**	1.351	1.629	1.490	0.197
	10	2.536	1.466	2.001	0.757
	20	2.239	1.175	1.707	0.752
	30	2.211	1.301	1.756	0.643
0.5	**0**	1.876	0.987	1.432	0.629
	10	1.107	1.042	1.075	0.046
	20	1.595	0.810	1.203	0.555
	30	1.276	0.964	1.120	0.221
1	**0**	1.238	0.823	1.031	0.293
	10	1.562	1.053	1.308	0.360
	20	0.942	0.901	0.922	0.029
	30	0.692	0.956	0.824	0.187
1.5	**0**	0.792	0.718	0.755	0.052
	10	0.688	0.686	0.687	0.001
	20	0.870	1.037	0.954	0.118
	30	1.535	0.535	1.035	0.707

Lampiran 1b. Hasil Perhitungan Kadar Air Enkapsulat Antosianin Ubi Jalar Ungu

Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**				**Rata-Rata**
	0	**10**	**20**	**30**	
0	1.490	2.001	1.707	1.756	1.739
0.5	1.432	1.075	1.203	1.120	1.208
1	1.031	1.308	0.922	0.824	1.021
1.5	0.755	0.687	0.954	1.035	0.858
Rata-Rata	**1.177**	**1.268**	**1.197**	**1.184**	**1.206**

Lampiran 1c. Data Analisa Sidik Ragam Kadar Air Enkapsulat Antosianin Ubi Jalar Ungu

Tests of Between-Subjects Effects

Dependent Variable: Kadar Air

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.351[a]	15	.290	1.491	.218
Intercept	46.544	1	46.544	239.205	.000
Konsentrasi	3.514	3	1.171	6.019	.006
Waktu	.042	3	.014	.072	.974
Konsentrasi * Waktu	.796	9	.088	.454	.884
Error	3.113	16	.195		
Total	54.009	32			
Corrected Total	7.464	31			

a. R Squared = .583 (Adjusted R Squared = .192)

Keterangan:
P>0,05 = tidak berpengaruh nyata
P<0,05 = berpengaruh nyata
P≤0,00 = sangat berpengaruh nyata

Lampiran 1d. Data Hasil Uji Lanjut Metode Duncan Konsentrasi Penyalut terhadap Kadar Air Enkapsulat Antosianin Ubi Jalar Ungu

Kadar Air

Duncan[a,b]

Konsentrasi alginat	N	Subset 1	Subset 2
A3	8	.8576	
A2	8	1.0209	
A1	8	1.2071	
A0	8		1.7385
Sig.		.152	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 1e. Data Hasil Uji Lanjut Metode Duncan Waktu Perendaman $CaCl_2$ terhadap Kadar Air Enkapsulat Antosianin Ubi Jalar Ungu

Kadar Air

Duncan[a,b]

Waktu perendaman	N	Subset 1
B0	8	1.1768
B3	8	1.1838
B2	8	1.1961
B1	8	1.2675
Sig.		.710

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 2. Hasil Pengujian Kelarutan Enkapsulat Antosianin Ubi Jalar Ungu

Lampiran 2a. Hasil Pengamatan Kelarutan Enkapsuat Antosianin Ubi Jalar Ungu

Kelarutan (%)					
Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**	**Ulangan I**	**Ulangan II**	**Rata-Rata**	**SD**
0	**0**	52.951	49.633	51.292	2.346
	10	48.210	52.103	50.157	2.753
	20	41.273	46.473	43.873	3.677
	30	52.914	47.418	50.166	3.886
0.5	**0**	49.671	51.059	50.365	0.981
	10	48.261	52.064	50.163	2.689
	20	52.440	52.071	52.256	0.261
	30	54.206	53.951	54.079	0.180
1	**0**	51.040	48.780	49.910	1.598
	10	53.264	49.985	51.625	2.319
	20	53.328	53.840	53.584	0.362
	30	52.837	51.936	52.387	0.637
1.5	**0**	50.984	49.887	50.436	0.776
	10	51.097	50.941	51.019	0.110
	20	50.812	49.875	50.344	0.663
	30	54.405	50.969	52.687	2.430

Lampiran 2b. Hasil Perhitungan Kelarutan Enkapsulat Antosianin Ubi Jalar Ungu

Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**				**Rata-Rata**
	0	**10**	**20**	**30**	
0	51.292	50.157	43.873	50.166	**48.872**
0.5	50.365	50.163	52.256	54.079	**51.716**
1	49.910	51.625	53.584	52.387	**51.877**
1.5	50.436	51.019	50.344	52.687	**51.122**
Rata-Rata	**50.501**	**50.741**	**50.014**	**52.330**	**50.896**

Lampiran 2c. Data Analisa Sidik Ragam Kelarutan Enkapsulat Antosianin Ubi Jalar Ungu

Tests of Between-Subjects Effects

Dependent Variable: Kelarutan

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	156.111[a]	15	10.407	2.545	.037
Intercept	82893.806	1	82893.806	20267.904	.000
Konsentrasi	46.242	3	15.414	3.769	.032
Waktu	24.124	3	8.041	1.966	.160
Konsentrasi * Waktu	85.745	9	9.527	2.329	.067
Error	65.438	16	4.090		
Total	83115.356	32			
Corrected Total	221.550	31			

a. R Squared = .583 (Adjusted R Squared = .192)

Keterangan:
P>0,05 = tidak berpengaruh nyata
P<0,05 = berpengaruh nyata
P≤0,00 = sangat berpengaruh nyata

Lampiran 2d. Data Hasil Uji Lanjut Metode Duncan Konsentrasi Penyalut terhadap Kelarutan Enkapsulat Antosianin Ubi Jalar Ungu

Kelarutan

Duncan[a,b]

Konsentrasi alginat	N	Subset 1	Subset 2
A0	8	48.8719	
A3	8		51.1216
A1	8		51.7154
A2	8		51.8763
Sig.		1.000	.490

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 2e. Data Hasil Uji Lanjut Metode Duncan Waktu Perendaman $CaCl_2$ terhadap Kelarutan Enkapsulat Antosianin Ubi Jalar Ungu

Kelarutan

Duncan[a,b]

Waktu perendaman	N	Subset 1
B0	8	50.5006
B1	8	50.7406
B2	8	52.5033
B3	8	54.8086
Sig.		.193

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 3. Hasil Pengujian Aktivitas Antioksidan IC_{50} Enkapsulat Antosianin Ubi Jalar Ungu

Lampiran 3a. Hasil Pengamatan Aktivitas Antioksidan IC_{50} Enkapsuat Antosianin Ubi Jalar Ungu

Aktivitas Antioksidan IC_{50} (ppm)					
Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**	**Ulangan I**	**Ulangan II**	**Rata-Rata**	**SD**
0	**0**	1833.333	1780.82	1807.078	37.131
	10	1798.45	1867.77	1833.109	49.016
	20	3689.66	2545.45	3117.555	809.072
	30	1708.66	1229.05	1468.856	339.136
0.5	**0**	1358.871	1880.952	1619.912	369.167
	10	2008.403	1468.927	1738.665	381.468
	20	3223.881	1966.102	2594.991	889.384
	30	3728.571	2693.182	3210.877	732.131
1	**0**	3553.719	3452.381	3503.050	71.657
	10	3402.985	6153.846	4778.416	1945.153
	20	2380.488	4418.367	3399.428	1440.998
	30	3586.777	5449.275	4518.026	1316.985
1.5	**0**	6016.393	4618.421	5317.407	988.516
	10	3490.566	4684.932	4087.749	844.544
	20	3166.667	9848.485	6507.576	4724.759
	30	7312.500	5446.154	6379.327	1319.706

Lampiran 3b. Hasil Perhitungan Aktivitas Antioksidan IC_{50} Enkapsulat Antosianin Ubi Jalar Ungu

Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**				**Rata-Rata**
	0	**10**	**20**	**30**	
0	1807.078	1833.109	3117.555	1468.856	2056.649
0.5	1619.912	1738.665	2594.991	3210.877	2291.111
1	3503.050	4778.416	3399.428	4518.026	4049.730
1.5	5317.407	4087.749	6507.576	6379.327	5573.015
Rata-Rata	3061.862	3109.485	3904.887	3894.271	3492.626

Lampiran 3c. Data Analisa Sidik Ragam Aktivitas Antioksidan IC_{50} Enkapsulat Antosianin Ubi Jalar Ungu

Tests of Between-Subjects Effects

Dependent Variable: Aktivitas Antioksidan

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	82240849.437[a]	15	5482723.296	2.455	.042
Intercept	390350005.940	1	390350005.940	174.764	.000
Konsentrasi	65152396.158	3	21717465.386	9.723	.001
Waktu	5309069.939	3	1769689.980	.792	.516
Konsentrasi * Waktu	11779383.340	9	1308820.371	.586	.790
Error	35737288.377	16	2233580.524		
Total	508328143.754	32			
Corrected Total	117978137.815	31			

a. R Squared = .583 (Adjusted R Squared = .192)

Keterangan:
P>0,05 = tidak berpengaruh nyata
P<0,05 = berpengaruh nyata
P≤0,00 = sangat berpengaruh nyata

Lampiran 3d. Data Hasil Uji Lanjut Metode Duncan Konsentrasi Penyalut terhadap Aktivitas Antioksidan IC_{50} Enkapsulat Antosianin Ubi Jalar Ungu

Aktivitas Antioksidan

Duncan[a,b]

Konsentrasi alginat	N	Subset 1	Subset 2
A0	8	2056.6491	
A1	8	2291.1111	
A2	8		4049.7298
A3	8		5573.0148
Sig.		.758	.058

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = 2233580.524.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha =

Lampiran 3e. Data Hasil Uji Lanjut Metode Duncan Waktu Perendaman $CaCl_2$ terhadap Aktivitas Antioksidan IC_{50} Enkapsulat Antosianin Ubi Jalar Ungu

Aktivitas Antioksidan

Duncan[a,b]

Lama perendaman	N	Subset 1
B0	8	3061.8613
B1	8	3109.4849
B3	8	3894.2711
B2	8	3904.8875
Sig.		.315

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = 2233580.524.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha =

Lampiran 4. Hasil Pengujian Total Antosianin Enkapsulat Antosianin Ubi Jalar Ungu

Lampiran 4a. Hasil Pengamatan Total Antosianin Enkapsuat Antosianin Ubi Jalar Ungu

Total Antosianin (mg/L)					
Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**	**Ulangan I**	**Ulangan II**	**Rata-Rata**	**SD**
0	**0**	3.206	4.308	3.757	0.779
	10	7.314	7.915	7.615	0.425
	20	7.414	8.216	7.815	0.567
	30	7.615	6.913	7.264	0.496
0.5	**0**	29.156	28.255	28.706	0.637
	10	9.719	11.522	10.621	1.275
	20	22.744	18.135	20.440	3.259
	30	14.027	16.131	15.079	1.488
1	**0**	27.854	29.557	28.706	1.204
	10	16.732	20.740	18.736	2.834
	20	20.940	22.443	21.692	1.063
	30	13.226	14.628	13.927	0.991
1.5	**0**	11.322	14.027	12.675	1.913
	10	6.813	8.717	7.765	1.346
	20	7.114	8.116	7.615	0.709
	30	5.911	5.611	5.761	0.212

Lampiran 4b. Hasil Perhitungan Total Antosianin Enkapsulat Antosianin Ubi Jalar Ungu

Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**				**Rata-Rata**
	0	**10**	**20**	**30**	
0	3.757	7.615	7.815	7.264	6.613
0.5	28.706	10.621	20.440	15.079	18.712
1	28.706	18.736	21.692	13.927	20.765
1.5	12.675	7.765	7.615	5.761	8.454
Rata-Rata	**18.461**	**11.184**	**14.391**	**10.508**	**13.636**

Lampiran 4c. Data Analisa Sidik Ragam Total Antosianin Enkapsulat Antosianin Ubi Jalar Ungu

Tests of Between-Subjects Effects

Dependent Variable: Antosianin

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1889.258[a]	15	125.951	59.561	.000
Intercept	5949.796	1	5949.796	2813.597	.000
Konsentrasi	1222.094	3	407.365	192.639	.000
Waktu	317.153	3	105.718	49.993	.000
Konsentrasi * Waktu	350.011	9	38.890	18.391	.000
Error	33.835	16	2.115		
Total	7872.889	32			
Corrected Total	1923.093	31			

a. R Squared = .583 (Adjusted R Squared = .192)

Keterangan:
P>0,05 = tidak berpengaruh nyata
P<0,05 = berpengaruh nyata
P≤0,00 = sangat berpengaruh nyata

Lampiran 4d. Data Hasil Uji Lanjut Metode Duncan Konsentrasi Penyalut terhadap Total Antosianin Enkapsulat Antosianin Ubi Jalar Ungu

Antosianin

Duncan[a,b]

		Subset			
Konsentrasi alginat	N	1	2	3	4
A0	8	6.6126			
A3	8		8.4539		
A1	8			18.7111	
A2	8				20.7650
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 4e. Data Hasil Uji Lanjut Metode Duncan Waktu Perendaman $CaCl_2$ terhadap Total Antosianin Enkapsulat Antosianin Ubi Jalar Ungu

Antosianin

Duncan[a,b]

		Subset		
Waktu perendaman	N	1	2	3
B3	8	10.5078		
B1	8	11.1840		
B2	8		14.3903	
B0	8			18.4606
Sig.		.366	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 5. Hasil Pengujian Efisiensi Enkapsulat Antosianin Ubi Jalar Ungu

Lampiran 5a. Hasil Pengamatan Efisiensi Enkapsulat Antosianin Ubi Jalar Ungu

Efisiensi Enkapsulasi (%)					
Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**	**Ulangan I**	**Ulangan II**	**Rata-Rata**	**SD**
0	**0**	5.008	6.729	5.869	1.217
	10	11.424	12.363	11.894	0.664
	20	11.581	12.833	12.207	0.885
	30	11.894	10.798	11.346	0.775
0.5	**0**	45.540	44.131	44.836	0.996
	10	15.180	17.997	16.589	1.992
	20	35.524	28.326	31.925	5.090
	30	21.909	25.196	23.553	2.324
1	**0**	43.505	46.166	44.836	1.882
	10	26.135	32.394	29.265	4.426
	20	32.707	35.055	33.881	1.660
	30	20.657	22.848	21.753	1.549
1.5	**0**	17.684	21.909	19.797	2.988
	10	10.642	13.615	12.129	2.102
	20	11.111	12.676	11.894	1.107
	30	9.233	8.764	8.999	0.332

Lampiran 5b. Hasil Perhitungan Efisiensi Enkapsulat Antosianin Ubi Jalar Ungu

Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**				**Rata-Rata**
	0	**10**	**20**	**30**	
0	5.869	11.894	12.207	11.346	**10.329**
0.5	44.836	16.589	31.925	23.553	**29.226**
1	44.836	29.265	33.881	21.753	**32.434**
1.5	19.797	12.129	11.894	8.999	**13.205**
Rata-Rata	**28.835**	**17.469**	**22.477**	**16.413**	**21.298**

Lampiran 5c. Data Analisa Sidik Ragam Efisiensi Enkapsulat Antosianin Ubi Jalar Ungu

Tests of Between-Subjects Effects

Dependent Variable: Efisiensi

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4608.972[a]	15	307.265	59.563	.000
Intercept	14515.269	1	14515.269	2813.774	.000
Konsentrasi	2981.385	3	993.795	192.646	.000
Waktu	773.704	3	257.901	49.994	.000
Konsentrasi * Waktu	853.884	9	94.876	18.392	.000
Error	82.538	16	5.159		
Total	19206.779	32			
Corrected Total	4691.510	31			

a. R Squared = .583 (Adjusted R Squared = .192)

Keterangan:
P>0,05 = tidak berpengaruh nyata
P<0,05 = berpengaruh nyata
P≤0,00 = sangat berpengaruh nyata

Lampiran 5d. Data Hasil Uji Lanjut Metode Duncan Konsentrasi Penyalut terhadap Efisiensi Enkapsulat Antosianin Ubi Jalar Ungu

Efisiensi

Duncan[a,b]

Konsentrasi alginat	N	Subset 1	2	3	4
A0	8	10.3288			
A3	8		13.2043		
A1	8			29.2254	
A2	8				32.4334
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 5e. Data Hasil Uji Lanjut Metode Duncan Waktu Perendaman $CaCl_2$ terhadap Efisiensi Enkapsulat Antosianin Ubi Jalar Ungu

Efisiensi

Duncan[a,b]

Waktu perendaman	N	Subset 1	2	3
B3	8	16.4124		
B1	8	17.4688		
B2	8		22.4766	
B0	8			28.8340
Sig.		.366	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 6. Hasil Pengujian Warna (L) Enkapsulat Antosianin Ubi Jalar Ungu

Lampiran 6a. Hasil Pengamatan Warna (L) Enkapsuat Antosianin Ubi Jalar Ungu

Warna (L)					
Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**	**Ulangan I**	**Ulangan II**	**Rata-Rata**	**SD**
0	**0**	56.20	50.06	53.13	4.34
	10	56.58	42.81	49.70	9.74
	20	53.83	47.65	50.74	4.37
	30	57.47	44.09	50.78	9.46
0.5	**0**	53.06	53.40	53.23	0.24
	10	56.83	49.15	52.99	5.43
	20	54.41	49.04	51.73	3.80
	30	53.89	49.72	51.81	2.95
1	**0**	48.89	48.87	48.88	0.01
	10	55.67	51.68	53.68	2.82
	20	54.19	52.11	53.15	1.47
	30	57.13	48.55	52.84	6.07
1.5	**0**	51.37	48.45	49.91	2.06
	10	54.39	45.31	49.85	6.42
	20	51.60	51.41	51.51	0.13
	30	55.34	49.58	52.46	4.07

Lampiran 6b. Hasil Perhitungan Warna (L) Enkapsulat Antosianin Ubi Jalar Ungu

Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**				**Rata-Rata**
	0	**10**	**20**	**30**	
0	53.13	49.70	50.74	50.78	**51.09**
0.5	53.23	52.99	51.73	51.81	**52.44**
1	48.88	53.68	53.15	52.84	**52.14**
1.5	49.91	49.85	51.51	52.46	**50.93**
Rata-Rata	**51.29**	**51.56**	**51.78**	**51.97**	**51.65**

Lampiran 6c. Data Analisa Sidik Ragam Warna (L) Enkapsulat Antosianin Ubi Jalar Ungu

Tests of Between-Subjects Effects

Dependent Variable: Kecerahan

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	65.773[a]	15	4.385	.192	.999
Intercept	84828.746	1	84828.746	3712.502	.000
Konsentrasi	21.799	3	7.266	.318	.812
Waktu	8.286	3	2.762	.121	.946
Konsentrasi * Waktu	35.688	9	3.965	.174	.994
Error	365.592	16	22.849		
Total	85260.110	32			
Corrected Total	431.364	31			

a. R Squared = .583 (Adjusted R Squared = .192)

Keterangan:

P>0,05 = tidak berpengaruh nyata

P<0,05 = berpengaruh nyata

P≤0,00 = sangat berpengaruh nyata

Lampiran 6d. Data Hasil Uji Lanjut Metode Duncan Konsentrasi Penyalut terhadap Warna (L) Enkapsulat Antosianin Ubi Jalar Ungu

Kecerahan

Duncan[a,b]

Konsentrasi alginat	N	Subset 1
A0	8	50.4425
A3	8	50.9313
A2	8	52.1363
A1	8	52.4375
Sig.		.454

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 6e. Data Hasil Uji Lanjut Metode Duncan Waktu Perendaman $CaCl_2$ terhadap Warna (L) Enkapsulat Antosianin Ubi Jalar Ungu

Kecerahan

Duncan[a,b]

Waktu perendaman	N	Subset 1
B0	8	50.6438
B1	8	51.5525
B2	8	51.7800
B3	8	51.9713
Sig.		.617

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 7. Hasil Pengujian Warna (a) Enkapsulat Antosianin Ubi Jalar Ungu

Lampiran 7a. Hasil Pengamatan Warna (a) Enkapsuat Antosianin Ubi Jalar Ungu

Warna (a)					
Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**	**Ulangan I**	**Ulangan II**	**Rata-Rata**	**SD**
0	**0**	30.29	31.25	30.77	0.68
	10	26.30	26.24	26.27	0.04
	20	25.54	32.56	29.05	4.96
	30	29.68	21.97	25.825	5.45
0.5	**0**	27.69	27.99	27.84	0.21
	10	24.71	23.58	24.145	0.80
	20	24.37	23.78	24.075	0.42
	30	29.58	29.14	29.36	0.31
1	**0**	24.33	26.65	25.49	1.64
	10	27.00	31.49	29.245	3.17
	20	25.73	31.47	28.6	4.06
	30	25.58	25.83	25.705	0.18
1.5	**0**	16.55	15.56	16.055	0.70
	10	22.11	21.86	21.985	0.18
	20	23.61	29.88	30.77	0.68
	30	13.15	25.15	26.27	0.04

Lampiran 7b. Hasil Perhitungan Warna (a) Enkapsulat Antosianin Ubi Jalar Ungu

Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**				**Rata-Rata**
	0	**10**	**20**	**30**	
0	53.13	49.70	50.74	50.78	**51.09**
0.5	53.23	52.99	51.73	51.81	**52.44**
1	48.88	53.68	53.15	52.84	**52.14**
1.5	49.91	49.85	51.51	52.46	**50.93**
Rata-Rata	**51.29**	**51.56**	**51.78**	**51.97**	**51.65**

Lampiran 7c. Data Analisa Sidik Ragam Warna (a) Enkapsulat Antosianin Ubi Jalar Ungu

Tests of Between-Subjects Effects

Dependent Variable: a

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	464.190[a]	15	30.946	2.794	.025
Intercept	21044.287	1	21044.287	1899.805	.000
Konsentrasi	242.288	3	80.763	7.291	.003
Waktu	23.949	3	7.983	.721	.554
Konsentrasi * Waktu	197.953	9	21.995	1.986	.111
Error	177.233	16	11.077		
Total	21685.711	32			
Corrected Total	641.424	31			

a. R Squared = .583 (Adjusted R Squared = .192)

Keterangan:

P>0,05 = tidak berpengaruh nyata

P<0,05 = berpengaruh nyata

P≤0,00 = sangat berpengaruh nyata

Lampiran 7d. Data Hasil Uji Lanjut Metode Duncan Konsentrasi Penyalut terhadap Warna (a) Enkapsulat Antosianin Ubi Jalar Ungu

a

Duncan[a,b]

Konsentrasi alginat	N	Subset 1	Subset 2
A3	8	20.9838	
A1	8		26.3550
A2	8		27.2600
A0	8		27.9788
Sig.		1.000	.369

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 7e. Data Hasil Uji Lanjut Metode Duncan Waktu Perendaman $CaCl_2$ terhadap Warna (a) Enkapsulat Antosianin Ubi Jalar Ungu

a

Duncan[a,b]

Waktu perendaman	N	Subset 1
B3	8	25.0100
B0	8	25.0388
B1	8	25.4112
B2	8	27.1175
Sig.		.261

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 8. Hasil Pengujian Warna (b) Enkapsulat Antosianin Ubi Jalar Ungu

Lampiran 8a. Hasil Pengamatan Warna (b) Enkapsuat Antosianin Ubi Jalar Ungu

Warna (a)					
Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**	**Ulangan I**	**Ulangan II**	**Rata-Rata**	**SD**
0	**0**	0.00	-0.29	-0.15	0.21
	10	2.06	3.02	2.54	0.68
	20	2.42	2.95	2.69	0.37
	30	2.71	2.70	2.71	0.01
0.5	**0**	-1.88	-1.90	-1.89	0.01
	10	1.29	1.72	1.51	0.30
	20	1.00	1.89	1.45	0.63
	30	1.27	1.95	1.61	0.48
1	**0**	-1.93	-1.77	-1.85	0.11
	10	0.79	1.78	1.29	0.70
	20	0.81	1.86	1.34	0.74
	30	1.04	1.96	1.50	0.65
1.5	**0**	-3.05	-2.04	-2.55	0.71
	10	0.81	0.80	0.81	0.01
	20	0.14	1.40	0.77	0.89
	30	0.01	0.00	0.01	0.01

Lampiran 8b. Data Analisa Sidik Ragam Warna (b) Enkapsulat Antosianin Ubi Jalar Ungu

Tests of Between-Subjects Effects

Dependent Variable: b

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	79.393[a]	15	5.293	20.433	.000
Intercept	17.287	1	17.287	66.738	.000
Konsentrasi	19.622	3	6.541	25.251	.000
Waktu	58.578	3	19.526	75.381	.000
Konsentrasi * Waktu	1.192	9	.132	.511	.846
Error	4.145	16	.259		
Total	100.825	32			
Corrected Total	83.537	31			

a. R Squared = .583 (Adjusted R Squared = .192)

Keterangan:
P>0,05 = tidak berpengaruh nyata
P<0,05 = berpengaruh nyata
P≤0,00 = sangat berpengaruh nyata

Lampiran 8c. Data Hasil Uji Lanjut Metode Duncan Konsentrasi Penyalut terhadap Warna (b) Enkapsulat Antosianin Ubi Jalar Ungu

b

Duncan[a,b]

Konsentrasi alginat	N	Subset 1	2	3
A3	8	-.2413		
A2	8		.5675	
A1	8		.6675	
A0	8			1.9463
Sig.		1.000	.700	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 8d. Data Hasil Uji Lanjut Metode Duncan Waktu Perendaman $CaCl_2$ terhadap Warna (a) Enkapsulat Antosianin Ubi Jalar Ungu

b

Duncan[a,b]

Waktu perendaman	N	Subset 1	2
B0	8	-1.6075	
B3	8		1.4550
B1	8		1.5338
B2	8		1.5588
Sig.		1.000	.705

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .195.
a. Uses Harmonic Mean Sample Size = 8.000.
b. Alpha = 0

Lampiran 9. Hasil Pengujian Release Antosianin Enkapsulat Antosianin Ubi Jalar Ungu

Lampiran 9a. Hasil Pengamatan Release Antosianin Enkapsuat Antosianin Ubi Jalar Ungu

Release Antosianin (mg/L)					
Konsentrasi Penyalut Alginat (%)	**Waktu Pengadukan (menit)**	**Ulangan I**	**Ulangan II**	**Rata-Rata**	**SD**
A0	**30**	0.601	0.501	0.551	0.071
A1		1.803	1.854	1.829	0.036
A2		1.603	1.403	1.503	0.141
A3		1.403	1.252	1.328	0.107
A0	**60**	0.501	0.551	0.526	0.035
A1		1.904	1.904	1.904	0.000
A2		1.453	1.002	1.228	0.319
A3		1.252	1.353	1.303	0.071

Lampiran 9b. Hasil Perhitungan Release Antosianin Enkapsulat Antosianin Ubi Jalar Ungu

Konsentrasi Penyalut Alginat (%)	**Waktu Perendaman $CaCl_2$ (menit)**		**Rata-Rata**
	30	**60**	
0	0.551	0.526	0.539
0.5	1.829	1.904	1.867
1	1.503	1.228	1.366
1.5	1.328	1.303	1.316
Rata-Rata	1.303	1.240	1.272

Lampiran 9c. Data Analisa Sidik Ragam Release Antosianin Enkapsulat Antosianin Ubi Jalar Ungu

Tests of Between-Subjects Effects

Dependent Variable: Release Antosianin

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3.690[a]	7	.527	28.931	.000
Intercept	25.857	1	25.857	1419.245	.000
Konsentrasi	3.607	3	1.202	65.990	.000
Waktu	.016	1	.016	.858	.381
Konsentrasi * Waktu	.067	3	.022	1.230	.361
Error	.146	8	.018		
Total	29.693	16			
Corrected Total	3.835	15			

a. R Squared = .583 (Adjusted R Squared = .192)

Keterangan:
P>0,05 = tidak berpengaruh nyata
P<0,05 = berpengaruh nyata
P≤0,00 = sangat berpengaruh nyata

Lampiran 9d. Data Hasil Uji Lanjut Metode Duncan Konsentrasi Penyalut terhadap Warna (b) Enkapsulat Antosianin Ubi Jalar Ungu

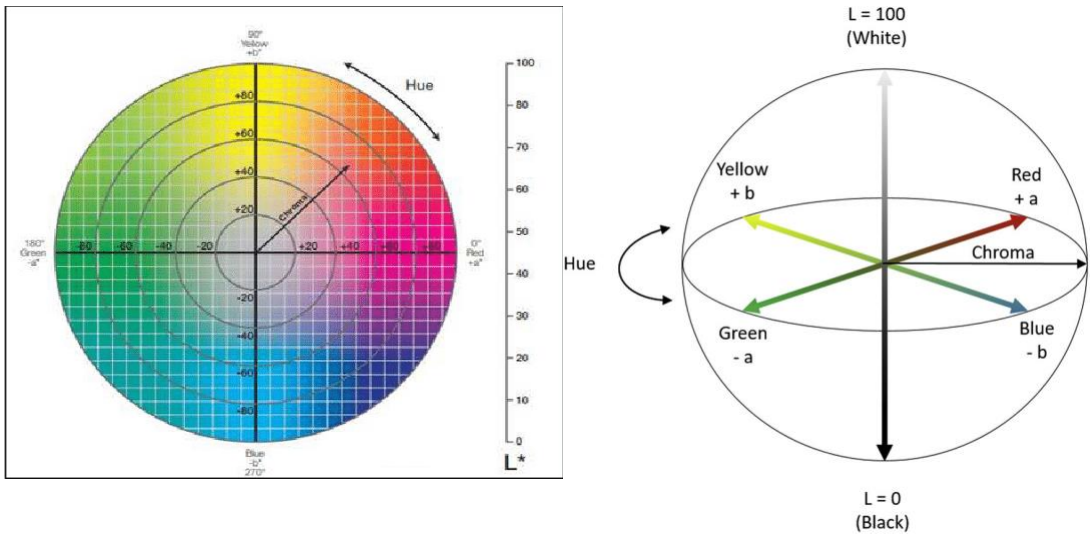
Release Antosianin

Duncan[a,b]

Konsentrasi penyalut	N	Subset 1	2	3
A0	4	.5385		
A3	4		1.3150	
A2	4		1.3653	
A1	4			1.8663
Sig.		1.000	.613	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = .018.
a. Uses Harmonic Mean Sample Size = 4.000.
b. Alpha = 0

Lampiran 10. Diagram Warna CIELAB



Lampiran 11. Interpretasi Spektrum FTIR (Coates, 2000)

Table 1 Saturated aliphatic (alkane/alkyl) group frequencies

Group frequency (cm^{-1})	Functional group/assignment
	Methyl ($-CH_3$)
2970–2950/2880–2860	Methyl C–H asym./sym. stretch
1470–1430/1380–1370	Methyl C–H asym./sym. bend
1385–1380/1370–1365	*gem*-Dimethyl or "iso"- (doublet)
1395–1385/1365	Trimethyl or "*tert*-butyl" (multiplet)
	Methylene ($>CH_2$)
2935–2915/2865–2845	Methylene C–H asym./sym. stretch
1485–1445	Methylene C–H bend
750–720	Methylene $-(CH_2)_n-$ rocking ($n \geq 3$)
1055–1000/1005–925	Cyclohexane ring vibrations
	Methyne ($>CH-$)
2900–2880	Methyne C–H stretch
1350–1330	Methyne C–H bend
1300–700	Skeletal C–C vibrations
	Special methyl ($-CH_3$) frequencies
2850–2815	Methoxy, methyl ether O–CH_3, C–H stretch
2820–2780	Methylamino, N–CH_3, C–H stretch

Table 2 Olefinic (alkene) group frequencies

Origin	Group frequency, wavenumber (cm^{-1})	Assignment
C=C	1680–1620	Alkenyl C=C stretch
	1625	Aryl-substituted C=C
	1600	Conjugated C=C
C–H	3095–3075 +3040–3010	Terminal (vinyl) C–H stretch
	3095–3075	Pendant (vinylidene) C–H stretch
	3040–3010	Medial, *cis*- or *trans*-C–H stretch
C–H	1420–1410	Vinyl C–H in-plane bend
	1310–1290	Vinylidene C–H in-plane bend
C–H	995–985 + 915–890	Vinyl C–H out-of-plane bend
	895–885	Vinylidene C–H out-of-plane bend
C–H	970–960	*trans*-C–H out-of-plane bend
	700 (broad)	*cis*-C–H out-of-plane bend

Table 3 Aromatic ring (aryl) group frequencies

Origin	Group frequency, wavenumber (cm^{-1})	Assignment
C=C–C[a]	1615–1580	Aromatic ring stretch
C=C–C[a]	1510–1450	Aromatic ring stretch
C–H	3130–3070	Aromatic C–H stretch
C–H	1225–950 (several)	Aromatic C–H in-plane bend
C–H	900–670 (several)	Aromatic C–H out-of-plane bend
	770–730 + 710–690	Monosubstitution (phenyl)
	770–735	1,2-Disubstitution (ortho)
	810–750 + 900–860	1,3-Disubstitution (meta)
	860–800	1,4-Disubstitution (para)
"Combi"[b]	2000–1660 (several)	Aromatic combination bands

[a] C=C–C used as an approximation of the unique aromatic ring bonding.
[b] "Combi" denotes assignment to combination bands.

Table 4 Acetylenic (alkyne) group frequencies

Origin	Group frequency, wavenumber (cm^{-1})	Assignment
C≡C	2140–2100	Terminal alkyne (monosubstituted)
C≡C	2260–2190	Medial alkyne (disubstituted)
C–H	3320–3310	Alkyne C–H stretch
C–H	680–610	Alkyne C–H bend
C–H	630 (typical)	Alkyne C–H bend

Table 5 Aliphatic organohalogen compound group frequencies

Origin	Group frequency, wavenumber (cm^{-1})[a]	Assignment
C–F	1150–1000	Aliphatic fluoro compounds, C–F stretch
C–Cl	800–700	Aliphatic chloro compounds, C–Cl stretch
C–Br	700–600	Aliphatic bromo compounds, C–Br stretch
C–I	600–500	Aliphatic iodo compounds, C–I stretch

[a] Note that the ranges quoted serve as a guide only; the actual ranges are influenced by carbon chain length, the actual number of halogen substituents, and the molecular conformations present.

Table 6 Alcohol and hydroxy compound group frequencies

Origin	Group frequency, wavenumber (cm^{-1})	Assignment
O–H	3570–3200 (broad)	Hydroxy group, H-bonded OH stretch
	3400–3200	Normal "polymeric" OH stretch
	3550–3450	Dimeric OH stretch
	3570–3540	Internally bonded OH stretch
O–H	3645–3600 (narrow)	Nonbonded hydroxy group, OH stretch
	3645–3630	Primary alcohol, OH stretch
	3635–3620	Secondary alcohol, OH stretch
	3620–3540	Tertiary alcohol, OH stretch
	3640–3530[a]	Phenols, OH stretch
O–H	1350–1260	Primary or secondary, OH in-plane bend
	1410–1310	Phenol or tertiary alcohol, OH bend
	720–590	Alcohol, OH out-of-plane bend
C–O	~1050[b]	Primary alcohol, C–O stretch
	~1100[b]	Secondary alcohol, C–O stretch
	~1150[b]	Tertiary alcohol, C–O stretch
	~1200[b]	Phenol, C–O stretch

[a] Frequency influenced by nature and position of other ring substituents.
[b] Approximate center of range for the group frequency.

Table 7 Ether and oxy compound group frequencies

Origin	Group frequency, wavenumber (cm^{-1})	Assignment
C–H	2820–2810	Methoxy, C–H stretch (CH_3–O–)
C–O–C	1150–1050	Alkyl-substituted ether, C–O stretch
C–O–C	1140–1070	Cyclic ethers, large rings, C–O stretch
ϕ–O–H	1270–1230	Aromatic ethers, aryl–O stretch
C–O–	~1250 + 890–800[a]	Epoxy and oxirane rings
C–O–O–C	890–820[a]	Peroxides, C–O–O– stretch

[a] Typically very weak, and not very characteristic in the infrared. Tend to be more characteristic in the Raman spectrum.

Table 8 Amine and amino compound group frequencies

Origin	Group frequency, wavenumber (cm^{-1})	Assignment
		Primary amino
N–H	3400–3380 +3345–3325	Aliphatic primary amine, NH stretch
N–H	3510–3460 +3415–3380	Aromatic primary amine, NH stretch
N–H	1650–1590	Primary amine, NH bend
C–N	1090–1020	Primary amine, CN stretch
		Secondary amino
>N–H	3360–3310	Aliphatic secondary amine, NH stretch
>N–H	~3450	Aromatic secondary amine, NH stretch
>N–H	3490–3430	Heterocyclic amine, NH stretch
=N–H	3350–3320	Imino compounds, NH stretch
>N–H	1650–1550	Secondary amine, NH bend
C–N	1190–1130	Secondary amine, CN stretch
		Tertiary amino
C–N	1210–1150	Tertiary amine, CN stretch
		Aromatic amino
C–N	1340–1250	Aromatic primary amine, CN stretch
C–N	1350–1280	Aromatic secondary amine, CN stretch
C–N	1360–1310	Aromatic tertiary amine, CN stretch

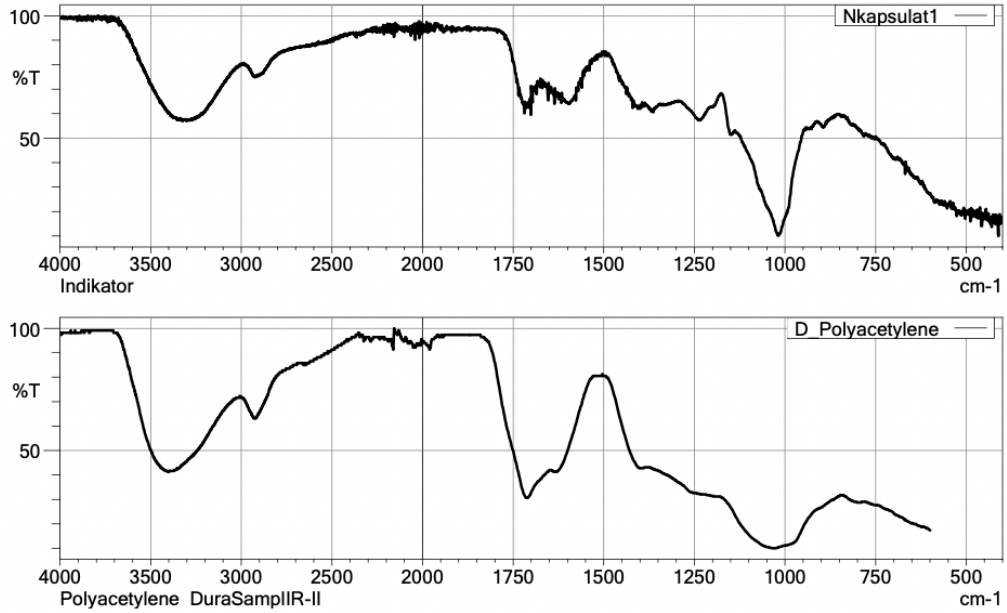
Table 9 Example carbonyl compound group frequencies

Group frequency (cm^{-1})	Functional group
1610–1550/1420–1300	Carboxylate (carboxylic acid salt)
1680–1630	Amide
1690–1675/(1650–1600)[a]	Quinone or conjugated ketone
1725–1700	Carboxylic acid
1725–1705	Ketone
1740–1725/(2800–2700)[b]	Aldehyde
1750–1725	Ester
1735	Six-membered ring lactone
1760–1740	Alkyl carbonate
1815–1770	Acid (acyl) halide
1820–1775	Aryl carbonate
1850–1800/1790–1740	Open-chain acid anhydride
1870–1820/1800–1775	Five-membered ring anhydride
2100–1800	Transition metal carbonyls

[a] Lower frequency band is from the conjugated double bond.
[b] Higher frequency band characteristic of aldehydes, associated with the terminal aldehydic C–H stretch.

Lampiran 12. Hasil FTIR Enkapsulat Antosianin

Enkapsulat Antosianin (0% Alginat, 2% Pektin)



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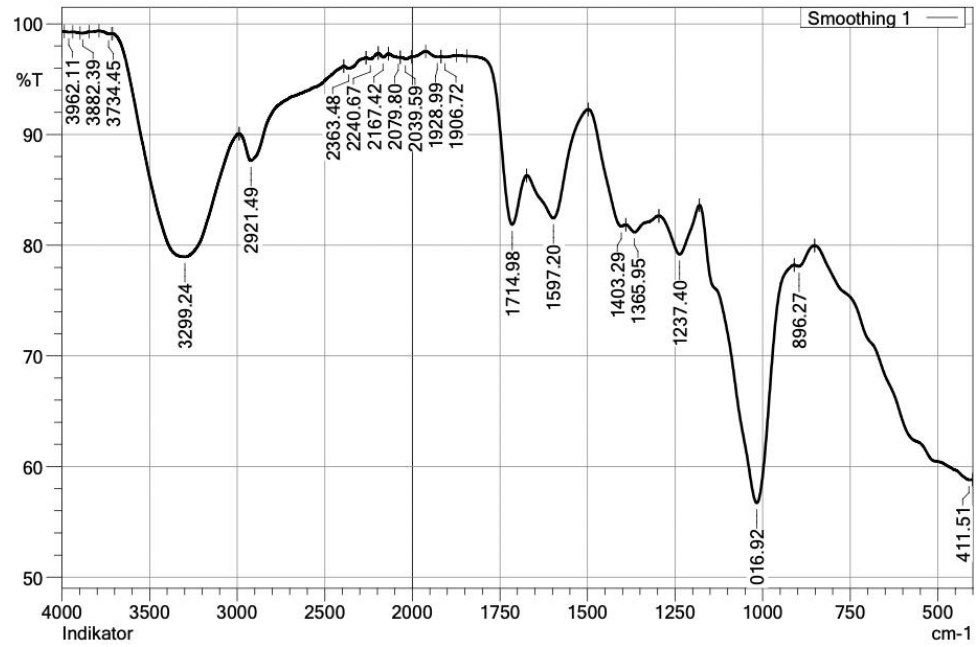
	Score	Library	Name	Comment
1	809	27 - ATR-Polymer2	D_Polyacetylene	Polyacetylene DuraSamplIR-II
2	803	174 - ATR-Polymer2	D_Tencel	Tencel(LENZING Coorporation) DuraSamplIR-II
3	802	8 - IRs Polymer2	CELLOPHA	Cellulose ATR/diamond ATRcorrected
4	802	19 - A_FoodAdditives2	A_Carboxymethyl Cellulose Calcium-4	Carboxymethyl Cellulose Calcium(Product name;E.C.G-FACSales origin;Gotoku CHEMICAL CO.,LTD.)@DuraSamplIR2(diamond)
5	800	11 - ATR-Polymer2	D_Cellulose4	Bemberg(Cupra) DuraSamplIR-I
6	796	50 - A_FoodAdditives2	A_Powdered Cellulose-4	Powdered Cellulosec(Product name;VITACEL L-600CSales origin;TOAKASEI CO.,LTD.)@DuraSamplIR2(diamond)
7	795	4 - T-Organic2	Starch	Soluble Starch Transmission
8	789	1 - gula dan karbo	xylan polisakarida1	
9	789	27 - T-Polymer2	Polyacetylene	Polyacetylene Transmission(Microscope)
10	787	20 - T_FoodAdditives2	T_Carboxymethyl Cellulose Calcium-4	Carboxymethyl Cellulose Calcium(Product name;E.C.G-FACSales origin;Gotoku CHEMICAL CO.,LTD.)@KBr Wafer

11	783	43 - A_FoodAdditives2	A_Microfibrillated Cellulose_100G-4	Microfibrillated Cellulose(Product name;CELISH FD-100GCSales origin;Daicel Chemical Industries Ltd.)@DuraSamplIR2(diamond)
12	781	4 - ATR-Organic2	D_Starch	Soluble Starch_DuraSamplIR
13	780	20 - A_FoodAdditives2	A_Carboxymethyl Cellulose Sodium Salt-4	Carboxymethyl Cellulose Sodium Salt(Sales origin;Wako Pure Chemical Industries, Ltd.)@DuraSamplIR2(diamond)
14	779	42 - A_FoodAdditives2	A_Microfibrillated Cellulose_100F-4	Microfibrillated Cellulose(Product name;CELISH FD-100FCSales origin;Daicel Chemical Industries Ltd.)@DuraSamplIR2(diamond)
15	770	41 - A_FoodAdditives2	A_Microcrystalline Cellulose_102-4	Microcrystalline Cellulose(Product name;VIVAPUR102CSales origin;TOAKASEI CO.,LTD.)@DuraSamplIR2(diamond)
16	769	49 - T_FoodAdditives2	T_Powdered Cellulose-4	Powdered Cellulosec(Product name;VITACEL L-600CSales origin;TOAKASEI CO.,LTD.)@KBr Wafer
17	767	44 - A_FoodAdditives2	A_Microfibrillated Cellulose_200L-4	Microfibrillated Cellulose(Product name;CELISH FD-200LCSales origin;Daicel Chemical Industries Ltd.)@DuraSamplIR2(diamond)
18	762	5 - IRs Polymer2	BEMBERG	Bemberg(Cupra) Fiber ATR/diamond ATRcorrected
19	762	40 - A_FoodAdditives2	A_Microcrystalline Cellulose_101-4	Microcrystalline Cellulose(Product name;VIVAPUR101CSales origin;TOAKASEI CO.,LTD.)@DuraSamplIR2(diamond)
20	760	21 - T_FoodAdditives2	T_Carboxymethyl Cellulose Sodium Salt-4	Carboxymethyl Cellulose Sodium Salt(Sales origin;Wako Pure Chemical Industries, Ltd.)@KBr Wafer
21	759	41 - T_FoodAdditives2	T_Microcrystalline Cellulose_101-4	Microcrystalline Cellulose(Product name;VIVAPUR101CSales origin;TOAKASEI CO.,LTD.)@KBr Wafer
22	758	42 - T_FoodAdditives2	T_Microcrystalline Cellulose_102-4	Microcrystalline Cellulose(Product name;VIVAPUR102CSales origin;TOAKASEI CO.,LTD.)@KBr Wafer
23	758	43 - T_FoodAdditives2	T_Microfibrillated Cellulose_200L-4	Microfibrillated Cellulose(Product name;CELISH FD-200LCSales origin;Daicel Chemical Industries Ltd.)@KBr Wafer
24	757	8 - ATR-Polymer2	D_Cellulose2	Paper_DuraSamplIR-II
25	756	63 - IRs Polymer2	RAYON	Rayon Fiber ATR/diamond ATRcorrected
26	756	45 - ATR-Organic2	D_Algin	Alginic Acid, Sodium Salt DuraSamplIR-II
27	755	11 - T-Inorganic2	Na3PO4	Na3PO4 12H2O_Transmission
28	752	10 - ATR-Polymer2	D_Cellulose3	Cotton_DuraSamplIR-II

29	749	143 - T-Polymer2	T_Tencel	Tencel(LENZING Coorporation) Transmission(Microscope)
30	743	12 - ATR-Polymer2	D_Cellulose5	Ramie_DuraSamplIR-II
31	743	3 - T-Inorganic2	TALC	TALC/3Mg4SiO2H2O Transmission
32	738	111 - ATR-Polymer2	D_Methyl_Cellulose	Methyl Cellulose(Methoxyl content 30%)_DuraSamplIR-II
33	734	122 - IRs ATR Reagent2	122	Carminic Acid C22H20O13 ATR/diamond molecular weight:492.39 powder
34	731	11 - T-Polymer2	Cupra	Bemberg(Cupra) Transmission(Microscope)
35	730	3 - IRs Polymer2	ARABIC	Arabic gum Film
36	729	184 - ATR-Polymer2	D_Methylcellulose	Methylcellulose_DuraSamplIR
37	727	43 - ATR-Organic2	D_HumicAcid	HumicAcid_DuraSamplIR
38	725	12 - T-Polymer2	Ramie	Ramie Transmission(Microscope)
39	724	9 - IRs Polymer2	COTTON	Cotton Fiber ATR/diamond ATRcorrected
40	721	37 - T-Organic2	HumicAcid	HumicAcid_Transmission
41	718	108 - ATR-Polymer2	D_Hydroxybutyl_Methyl_Cellulose	Hydroxybutyl Methyl Cellulose(8% Hydroxybutyl, 20%Methoxyl)_DuraSamplIR-II
42	717	10 - T-Polymer2	Cotton	Cotton Transmission(Microscope)
43	717	110 - ATR-Polymer2	D_Hydroxypropyl_Methyl_Cellulose	Hydroxypropyl Methyl Cellulose(10% Hydroxypropyl, 30% Methoxyl)_DuraSamplIR-II
44	714	179 - IRs Pharmaceuticals	Kitasamycin Tartrate	Kitasamycin Tartrate formula : C39H65NO14 ATR/diamond molecular weight : 771.93
45	711	230 - IRs ATR Reagent2	230	alpha-Cyclodextrin (C6H10O5)6 ATR/diamond molecular weight:972.85 powder
46	711	231 - IRs ATR Reagent2	231	beta-Cyclodextrin (C6H10O5)7 ATR/diamond molecular weight:1135.00 powder
47	711	111 - IRs ATR Reagent2	111	Dextran 2000 (C6H10O5)n ATR/diamond molecular weight:180000`210000 powder
48	709	8 - T-Polymer2	Paper	Paper Transmission(Microscope)
49	709	39 - T-Organic2	T_Algin	Alginic Acid, Sodium Salt Transmission(Microscope)
50	705	62 - IRs Polymer2	RAMIE	Ramie Fiber ATR/diamond ATRcorrected



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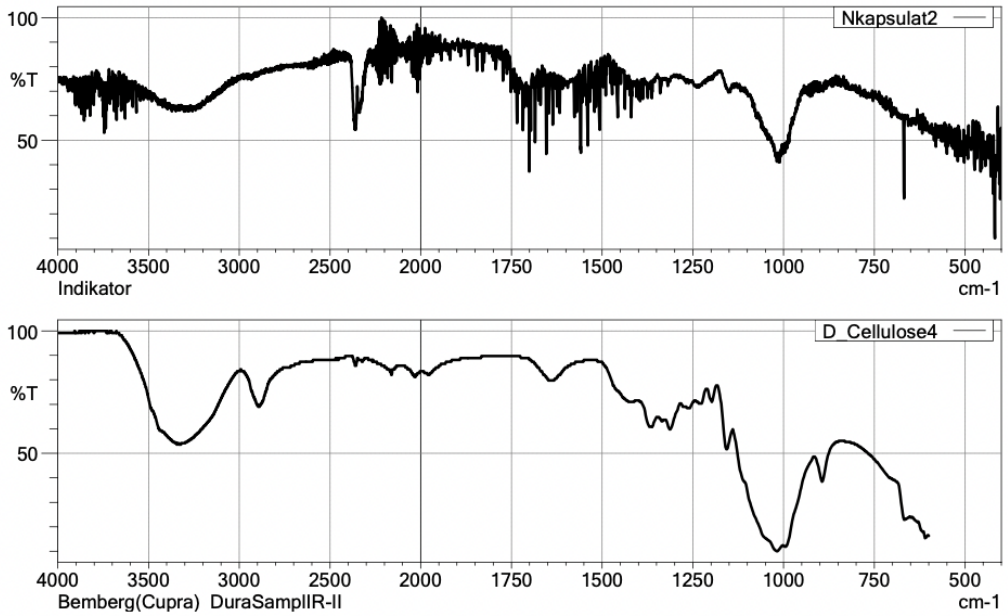
Indikator

	Item	Value
2	Sample name	N kapsulat
3	Sample ID	
4	Option	
5	Intensity Mode	%Transmittance
6	Apodization	Happ-Genzel
9	No. of Scans	5
10	Resolution	2 cm-1

	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area	Comment
1	411.51	58.79	0.49	851.74	401.45	14577.849	796.338	
2	896.27	78.09	0.53	909.91	851.74	1228.579	12.327	
3	1016.92	56.70	23.64	1180.66	909.91	8048.500	2881.033	
4	1237.40	79.17	3.98	1296.29	1180.66	2179.464	230.073	
5	1365.95	81.18	0.88	1391.08	1296.29	1717.476	34.956	
6	1403.29	81.73	1.31	1498.09	1391.08	1468.277	83.558	
7	1597.20	82.45	6.45	1673.32	1498.09	2363.588	486.785	
8	1714.98	81.86	7.08	1843.53	1673.32	1548.341	134.205	
9	1906.72	97.01	0.06	1918.22	1873.69	130.897	1.375	
10	1928.99	97.02	0.13	1962.02	1918.22	123.090	3.777	
11	2039.59	96.81	0.19	2068.31	2005.11	195.013	5.573	
12	2079.80	96.96	0.07	2136.54	2068.31	199.054	4.216	
13	2167.42	96.97	0.36	2193.99	2136.54	163.440	10.375	
14	2240.67	96.82	0.26	2264.37	2193.99	210.395	9.924	
15	2363.48	95.97	0.37	2391.49	2264.37	458.871	21.302	
16	2921.49	87.64	3.14	2989.00	2391.49	4415.714	310.208	
17	3299.24	78.95	15.01	3711.47	2989.00	10051.309	6151.697	
18	3734.45	99.08	0.10	3789.03	3717.22	56.214	1.842	
19	3882.39	99.16	0.05	3896.76	3845.05	41.190	1.486	
20	3962.11	99.25	0.04	3987.96	3939.13	35.671	1.014	

Enkapsulat Antosianin (0,5% Alginat, 2% Pektin)



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	Score	Library	Name	Comment
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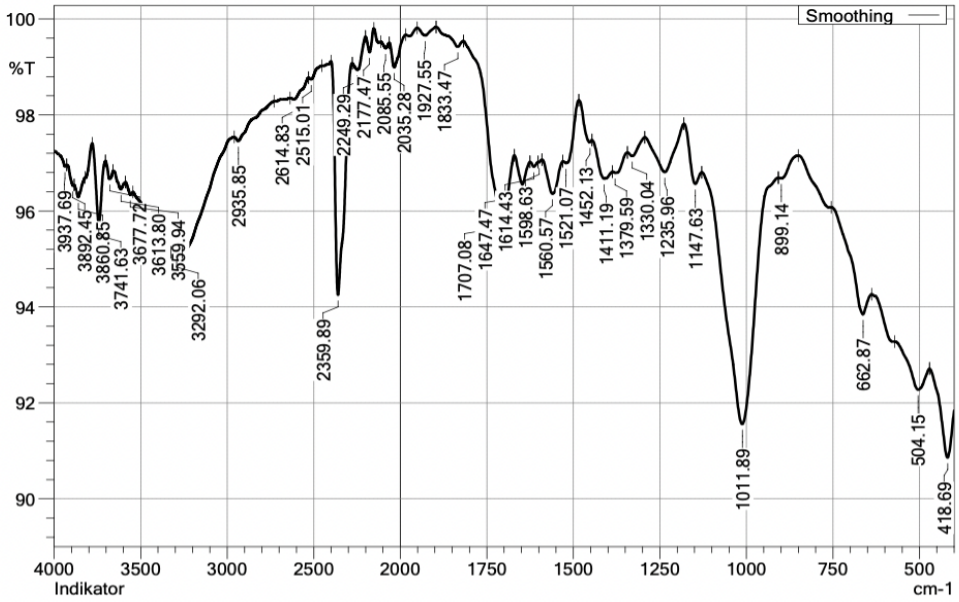
2	663	174 - ATR-Polymer2	D_Tencel	Tencel(LENZING Coorporation) DuraSamplIR-II
3	654	4 - ATR-Organic2	D_Starch	Soluble Starch DuraSamplIR
4	652	8 - IRs Polymer2	CELLOPHA	Cellulose ATR/diamond ATRcorrected
5	649	50 - A_FoodAdditives2	A_Powdered Cellulose-4	Powdered Cellulosec(Product name;VITACEL L-600CSales origin;TOAKASEI CO.,LTD.)@DuraSamplIR2(diamond)
6	644	43 - A_FoodAdditives2	A_Microfibrillated Cellulose_100G-4	Microfibrillated Cellulose(Product name;CELISH FD-100GCSales origin;Daicel Chemical Industries Ltd.)@DuraSamplIR2(diamond)
7	640	1 - gula dan karbo	xylan polisakarida1	
8	639	4 - T-Organic2	Starch	Soluble Starch Transmission
9	639	42 - A_FoodAdditives2	A_Microfibrillated Cellulose_100F-4	Microfibrillated Cellulose(Product name;CELISH FD-100FCSales origin;Daicel Chemical Industries Ltd.)@DuraSamplIR2(diamond)

10	635	19 - A_FoodAdditives2	A_Carboxymethyl Cellulose Calcium-4	Carboxymethyl Cellulose Calcium(Product name;E.C.G-FACSales origin;Gotoku CHEMICAL CO.,LTD.)@DuraSamplIR2(diamond)
11	633	44 - A_FoodAdditives2	A_Microfibrillated Cellulose_200L-4	Microfibrillated Cellulose(Product name;CELISH FD-200LCSales origin;Daicel Chemical Industries Ltd.)@DuraSamplIR2(diamond)
12	633	41 - A_FoodAdditives2	A_Microcrystalline Cellulose_102-4	Microcrystalline Cellulose(Product name;VIVAPUR102CSales origin;TOAKASEI CO.,LTD.)@DuraSamplIR2(diamond)
13	631	30 - ATR-Inorganic2	D_TALC4	TALC(Polyethylene, Chlorinated/Chlorine content 48%) DuraSamplIR-II
14	629	40 - A_FoodAdditives2	A_Microcrystalline Cellulose_101-4	Microcrystalline Cellulose(Product name;VIVAPUR101CSales origin;TOAKASEI CO.,LTD.)@DuraSamplIR2(diamond)
15	628	3 - T-Inorganic2	TALC	TALC/3Mg4SiO2H2O Transmission
16	625	8 - ATR-Polymer2	D_Cellulose2	Paper DuraSamplIR-II
17	624	31 - ATR-Inorganic2	D_TALC5	TALC(Polyethylene, Chlorosulfonated) DuraSamplIR-II
18	623	29 - ATR-Inorganic2	D_TALC3	TALC(with Polyethylene, Chlorinated /Chlorine content 42%) DuraSamplIR-II
19	623	10 - ATR-Polymer2	D_Cellulose3	Cotton DuraSamplIR-II
20	622	122 - IRs ATR Reagent2	122	Carminic Acid C22H20O13 ATR/diamond molecular weight:492.39 powder
21	621	27 - ATR-Inorganic2	D_TALC2	TALC(with Polyethylene, Chlorinated /Chlorine content 25%) DuraSamplIR-II
22	620	12 - ATR-Polymer2	D_Cellulose5	Ramie DuraSamplIR-II
23	619	27 - ATR-Polymer2	D_Polyacetylene	Polyacetylene DuraSamplIR-II
24	617	20 - A_FoodAdditives2	A_Carboxymethyl Cellulose Sodium Salt-4	Carboxymethyl Cellulose Sodium Salt(Sales origin;Wako Pure Chemical Industries, Ltd.)@DuraSamplIR2(diamond)
25	617	20 - T_FoodAdditives2	T_Carboxymethyl Cellulose Calcium-4	Carboxymethyl Cellulose Calcium(Product name;E.C.G-FACSales origin;Gotoku CHEMICAL CO.,LTD.)@KBr Wafer
26	616	11 - ATR-Inorganic2	D_Na3PO4	Na3PO4 12H2O DuraSamplIR
27	616	3 - ATR-Inorganic2	D_TALC	TALC/3Mg4SiO2H2O DuraSamplIR
28	615	11 - T-Inorganic2	Na3PO4	Na3PO4 12H2O Transmission

29	613	230 - IRs ATR Reagent2	230	alpha-Cyclodextrin (C6H10O5)6 ATR/diamond molecular weight:972.85 powder
30	611	231 - IRs ATR Reagent2	231	beta-Cyclodextrin (C6H10O5)7 ATR/diamond molecular weight:1135.00 powder
31	610	49 - T_FoodAdditives2	T_Powdered Cellulose-4	Powdered Cellulosec(Product name;VITACEL L-600CSales origin;TOAKASEI CO.,LTD.)@KBr Wafer
32	610	111 - IRs ATR Reagent2	111	Dextran 2000 (C6H10O5)n ATR/diamond molecular weight:180000`210000 powder
33	608	41 - T_FoodAdditives2	T_Microcrystalline Cellulose_101-4	Microcrystalline Cellulose(Product name;VIVAPUR101CSales origin;TOAKASEI CO.,LTD.)@KBr Wafer
34	605	42 - T_FoodAdditives2	T_Microcrystalline Cellulose_102-4	Microcrystalline Cellulose(Product name;VIVAPUR102CSales origin;TOAKASEI CO.,LTD.)@KBr Wafer
35	605	27 - T-Polymer2	Polyacetylene	Polyacetylene Transmission(Microscope)
36	605	43 - T_FoodAdditives2	T_Microfibrillated Cellulose_200L-4	Microfibrillated Cellulose(Product name;CELISH FD-200LCSales origin;Daicel Chemical Industries Ltd.)@KBr Wafer
37	604	165 - IRs ATR Reagent2	165	Soluble Starch ATR/diamond molecular weight: powder
38	601	63 - IRs Polymer2	RAYON	Rayon Fiber ATR/diamond ATRcorrected
39	601	111 - ATR-Polymer2	D_Methyl_Cellulose	Methyl Cellulose(Methoxyl content 30%) DuraSamplIR-II
40	600	22 - ATR-Polymer2	D_Protein2	Protein(Soy Bean Powder) DuraSamplIR-II
41	599	34 - ATR-Inorganic2	D_Na6Al6Si6O24S4	Na6Al6Si6O24S4, DuraSamplIR, Pig No. B-29, Ultramarine, CAS No. 57455-37-5
42	599	21 - T_FoodAdditives2	T_Carboxymethyl Cellulose Sodium Salt-4	Carboxymethyl Cellulose Sodium Salt(Sales origin;Wako Pure Chemical Industries, Ltd.)@KBr Wafer
43	598	184 - ATR-Polymer2	D_Methylcellulose	Methylcellulose DuraSamplIR
44	594	25 - ATR-Inorganic2	D_AlOH3	Aluminium Hydroxide/Al(OH)3 DuraSamplIR
45	594	29 - T-Inorganic2	T_Na6Al6Si6O24S4	Na6Al6Si6O24S4, Transmission(Microscope), Pig No. B-29, Ultramarine, CAS No. 57455-37-5
46	592	9 - IRs Polymer2	COTTON	Cotton Fiber ATR/diamond ATRcorrected
47	591	2 - gula dan karbo	d-glucose11	
48	590	6 - T-Inorganic2	Glass2	Glass Transmission
49	590	33 - ATR-Organic2	D_AcetylCellulose	AcetylCellulose DuraSamplIR
50	588	108 - ATR-Polymer2	D_Hydroxybutyl_Methyl_Cellulose	Hydroxybutyl Methyl Cellulose(8% Hydroxybutyl, 20%Methoxyl) DuraSamplIR-II



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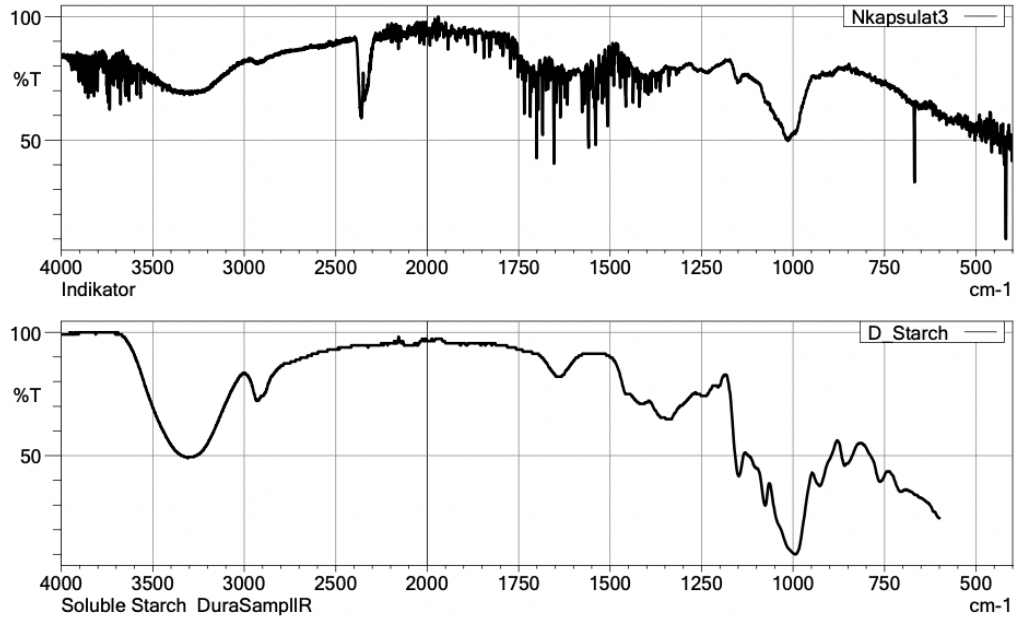
Indikator

	Item	Value
2	Sample name	N kapsulat
3	Sample ID	
4	Option	
5	Intensity Mode	%Transmittance
6	Apodization	Happ-Genzel
9	No. of Scans	5
10	Resolution	2 cm-1

	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area	Comment
1	418.69	90.86	1.21	471.12	400.02	586.101	36.825	
2	504.15	92.27	0.62	572.38	471.12	736.441	27.033	
3	662.87	93.85	0.80	754.79	638.45	591.350	29.184	
4	899.14	96.68	0.08	907.04	850.31	175.410	0.894	
5	1011.89	91.56	5.19	1128.95	908.48	1187.326	470.550	
6	1147.63	96.56	0.61	1180.66	1128.95	154.650	15.602	
7	1235.96	96.81	0.87	1293.41	1180.66	313.125	51.016	
8	1330.04	97.15	0.16	1343.68	1293.41	135.824	3.946	
9	1379.59	96.79	0.09	1386.77	1343.68	131.558	3.120	
10	1411.19	96.67	0.42	1446.38	1386.77	183.224	13.269	
11	1452.13	97.43	0.17	1484.44	1446.38	84.834	4.592	
12	1521.07	96.99	0.30	1530.41	1484.44	117.608	10.547	
13	1560.57	96.36	0.69	1590.73	1530.41	199.196	21.425	
14	1598.63	97.01	0.02	1601.51	1590.73	31.928	0.108	
15	1614.43	96.92	0.10	1625.20	1601.51	71.723	1.165	
16	1647.47	96.55	0.54	1670.45	1625.20	143.513	11.917	
17	1707.08	95.90	1.85	1817.67	1670.45	341.304	98.411	
18	1833.47	99.42	0.18	1896.67	1817.67	30.889	6.169	
19	1927.55	99.66	0.17	1951.25	1896.67	14.111	4.612	
20	2035.28	98.99	0.57	2063.28	1984.29	56.755	24.112	
21	2085.55	99.39	0.13	2112.84	2063.28	27.098	3.038	
22	2177.47	99.31	0.41	2200.45	2153.05	23.112	9.718	
23	2249.29	98.94	0.34	2277.30	2200.45	64.662	15.204	
24	2359.89	94.25	4.86	2400.10	2277.30	392.970	282.425	
25	2515.01	98.74	0.08	2530.09	2453.25	85.503	1.107	
26	2614.83	98.32	0.12	2637.10	2530.09	162.051	8.354	
27	2935.85	97.46	0.16	2959.55	2729.02	485.875	5.024	
28	3292.06	95.08	0.05	3325.10	3260.46	316.043	1.507	
29	3559.94	96.34	0.13	3587.95	3544.86	153.612	2.677	
30	3613.80	96.45	0.23	3659.76	3587.95	243.700	8.096	
31	3677.72	96.67	0.26	3703.57	3659.76	140.216	6.220	
32	3741.63	95.74	1.49	3780.41	3703.57	264.555	51.456	
33	3860.85	96.29	0.31	3884.55	3821.35	223.115	9.473	
34	3892.45	96.53	0.09	3928.36	3884.55	143.442	1.111	
35	3937.69	96.92	0.07	4000.17	3928.36	207.365	-0.675	

Enkapsulat Antosianin (1% Alginat, 2% Pektin)



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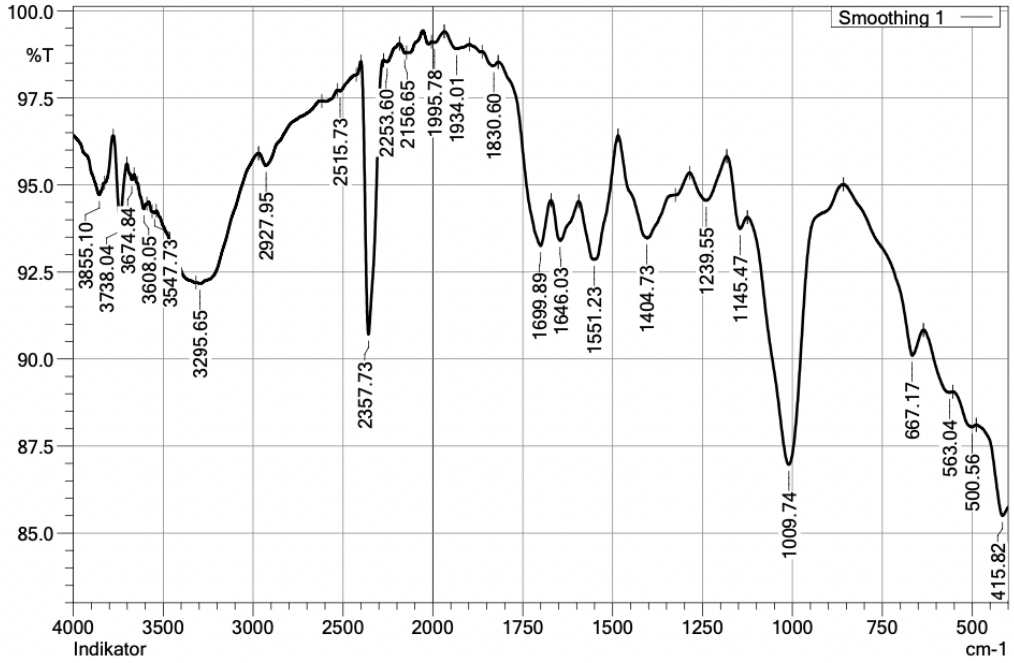
	Score	Library	Name	Comment
1	673	4 - ATR-Organic2	D_Starch	Soluble Starch DuraSamplIR
2	672	174 - ATR-Polymer2	D_Tencel	Tencel(LENZING Coorporation) DuraSamplIR-II
3	671	11 - ATR-Polymer2	D_Cellulose4	Bemberg(Cupra) DuraSamplIR-I
4	662	8 - IRs Polymer2	CELLOPHA	Cellulose ATR/diamond ATRcorrected
5	658	50 - A_FoodAdditives2	A_Powdered Cellulose-4	Powdered Cellulosec(Product name;VITACEL L-600CSales origin;TOAKASEI CO.,LTD.)@DuraSamplIR2(diamond)
6	656	4 - T-Organic2	Starch	Soluble Starch Transmission
7	653	43 - A_FoodAdditives2	A_Microfibrillated Cellulose_100G-4	Microfibrillated Cellulose(Product name;CELISH FD-100GCSales origin;Daicel Chemical Industries Ltd.)@DuraSamplIR2(diamond)
8	651	19 - A_FoodAdditives2	A_Carboxymethyl Cellulose Calcium-4	Carboxymethyl Cellulose Calcium(Product name;E.C.G-FACSales origin;Gotoku CHEMICAL CO.,LTD.)@DuraSamplIR2(diamond)
9	648	1 - gula dan karbo	xylan polisakarida1	

10	647	42 - A_FoodAdditives2	A_Microfibrillated Cellulose_100F-4	Microfibrillated Cellulose(Product name;CELISH FD-100FCSales origin;Daicel Chemical Industries Ltd.)@DuraSamplIR2(diamond)
11	641	41 - A_FoodAdditives2	A_Microcrystalline Cellulose_102-4	Microcrystalline Cellulose(Product name;VIVAPUR102CSales origin;TOAKASEI CO.,LTD.)@DuraSamplIR2(diamond)
12	641	27 - ATR-Polymer2	D_Polyacetylene	Polyacetylene_DuraSamplIR-II
13	639	44 - A_FoodAdditives2	A_Microfibrillated Cellulose_200L-4	Microfibrillated Cellulose(Product name;CELISH FD-200LCSales origin;Daicel Chemical Industries Ltd.)@DuraSamplIR2(diamond)
14	638	20 - T_FoodAdditives2	T_Carboxymethyl Cellulose Calcium-4	Carboxymethyl Cellulose Calcium(Product name;E.C.G-FACSales origin;Gotoku CHEMICAL CO.,LTD.)@KBr Wafer
15	638	30 - ATR-Inorganic2	D_TALC4	TALC(Polyethylene, Chlorinated/Chlorine content 48%)_DuraSamplIR-II
16	637	122 - IRs ATR Reagent2	122	Carminic Acid C22H20O13 ATR/diamond molecular weight:492.39 powder
17	635	40 - A_FoodAdditives2	A_Microcrystalline Cellulose_101-4	Microcrystalline Cellulose(Product name;VIVAPUR101CSales origin;TOAKASEI CO.,LTD.)@DuraSamplIR2(diamond)
18	634	8 - ATR-Polymer2	D_Cellulose2	Paper_DuraSamplIR-II
19	632	29 - ATR-Inorganic2	D_TALC3	TALC(with Polyethylene, Chlorinated /Chlorine content 42%)_DuraSamplIR-II
20	632	3 - T-Inorganic2	TALC	TALC/3Mg4SiO2H2O Transmission
21	632	20 - A_FoodAdditives2	A_Carboxymethyl Cellulose Sodium Salt-4	Carboxymethyl Cellulose Sodium Salt(Sales origin;Wako Pure Chemical Industries, Ltd.)@DuraSamplIR2(diamond)
22	631	11 - T-Inorganic2	Na3PO4	Na3PO4 12H2O_Transmission
23	630	27 - T-Polymer2	Polyacetylene	Polyacetylene Transmission(Microscope)
24	630	10 - ATR-Polymer2	D_Cellulose3	Cotton_DuraSamplIR-II
25	629	31 - ATR-Inorganic2	D_TALC5	TALC(Polyethylene, Chlorosulfonated) DuraSamplIR-II
26	627	49 - T_FoodAdditives2	T_Powdered Cellulose-4	Powdered Cellulosec(Product name;VITACEL L-600CSales origin;TOAKASEI CO.,LTD.)@KBr Wafer
27	626	12 - ATR-Polymer2	D_Cellulose5	Ramie_DuraSamplIR-II

28	626	111 - IRs ATR Reagent2	111	Dextran 2000 (C6H10O5)n ATR/diamond molecular weight:180000`210000 powder
29	625	22 - ATR-Polymer2	D_Protein2	Protein(Soy Bean Powder) DuraSamplIR-II
30	624	41 - T_FoodAdditives2	T_Microcrystalline Cellulose_101-4	Microcrystalline Cellulose(Product name;VIVAPUR101CSales origin;TOAKASEI CO.,LTD.)@KBr Wafer
31	623	11 - ATR-Inorganic2	D_Na3PO4	Na3PO4 12H2O DuraSamplIR
32	622	42 - T_FoodAdditives2	T_Microcrystalline Cellulose_102-4	Microcrystalline Cellulose(Product name;VIVAPUR102CSales origin;TOAKASEI CO.,LTD.)@KBr Wafer
33	621	27 - ATR-Inorganic2	D_TALC2	TALC(with Polyethylene, Chlorinated /Chlorine content 25%) DuraSamplIR-II
34	621	63 - IRs Polymer2	RAYON	Rayon Fiber ATR/diamond ATRcorrected
35	621	231 - IRs ATR Reagent2	231	beta-Cyclodextrin (C6H10O5)7 ATR/diamond molecular weight:1135.00 powder
36	619	230 - IRs ATR Reagent2	230	alpha-Cyclodextrin (C6H10O5)6 ATR/diamond molecular weight:972.85 powder
37	618	43 - T_FoodAdditives2	T_Microfibrillated Cellulose_200L-4	Microfibrillated Cellulose(Product name;CELISH FD-200LCSales origin;Daicel Chemical Industries Ltd.)@KBr Wafer
38	617	21 - T_FoodAdditives2	T_Carboxymethyl Cellulose Sodium Salt-4	Carboxymethyl Cellulose Sodium Salt(Sales origin;Wako Pure Chemical Industries, Ltd.)@KBr Wafer
39	616	165 - IRs ATR Reagent2	165	Soluble Starch ATR/diamond molecular weight: powder
40	611	143 - T-Polymer2	T_Tencel	Tencel(LENZING Coorporation) Transmission(Microscope)
41	607	3 - ATR-Inorganic2	D_TALC	TALC/3Mg4SiO2H2O DuraSamplIR
42	605	9 - IRs Polymer2	COTTON	Cotton Fiber ATR/diamond ATRcorrected
43	604	25 - ATR-Inorganic2	D_AlOH3	Aluminium Hydroxide/Al(OH)3 DuraSamplIR
44	603	43 - ATR-Organic2	D_HumicAcid	HumicAcid DuraSamplIR
45	603	111 - ATR-Polymer2	D_Methyl_Cellulose	Methyl Cellulose(Methoxyl content 30%) DuraSamplIR-II
46	601	40 - ATR-Inorganic2	D_TiO2-Cr2O3-Sb2O5	TiO2-Cr2O3-Sb2O5, DuraSamplIR, Pig No. BR-24, Chromium Titanium Yellow, CAS No. 68186-90-3
47	601	184 - ATR-Polymer2	D_Methylcellulose	Methylcellulose DuraSamplIR
48	599	40 - IRs Reagent2	CAO	Calcium oxide [CaO] ORIGIN Date: 92/04/08 File: CAO.DX INFRARED SPECTROPHOTOMETER FTIR-8000 SERIES
49	599	33 - ATR-Organic2	D_AcetylCellulose	AcetylCellulose DuraSamplIR
50	599	45 - ATR-Organic2	D_Algin	Alginic Acid, Sodium Salt DuraSamplIR-II



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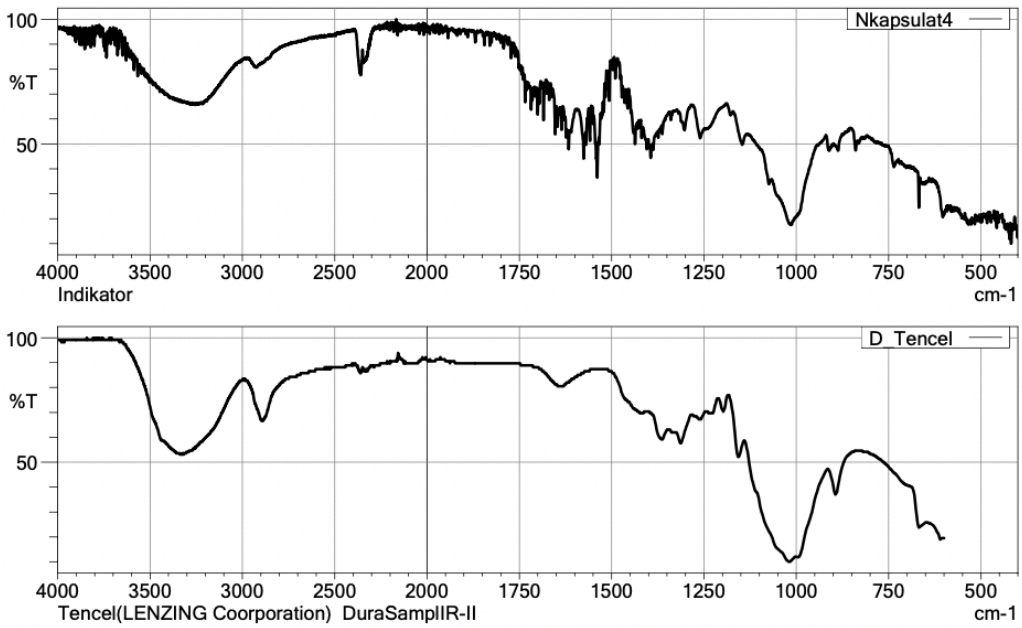
Indikator

	Item	Value
2	Sample name	N kapsulat
3	Sample ID	
4	Option	
5	Intensity Mode	%Transmittance
6	Apodization	Happ-Genzel
9	No. of Scans	5
10	Resolution	2 cm-1

	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area	Comment
1	415.82	85.50	0.66	489.07	400.02	1160.952	-3.057	
2	500.56	88.04	0.24	553.70	489.07	746.327	8.560	
3	563.04	89.04	0.23	635.57	553.70	840.455	17.516	
4	667.17	90.10	1.33	858.21	635.57	1595.458	20.849	
5	1009.74	86.97	7.52	1125.36	858.21	2180.248	723.791	
6	1145.47	93.74	0.95	1182.82	1125.36	316.100	26.076	
7	1239.55	94.55	1.01	1286.23	1182.82	514.558	58.029	
8	1404.73	93.48	2.08	1485.16	1325.73	887.358	180.286	
9	1551.23	92.86	2.42	1594.32	1485.16	648.233	154.050	
10	1646.03	93.40	1.15	1671.17	1594.32	465.571	46.293	
11	1699.89	93.25	2.09	1818.39	1671.17	614.484	105.989	
12	1830.60	98.42	0.19	1862.92	1818.39	64.106	5.201	
13	1934.01	98.91	0.32	1968.49	1898.11	66.814	12.128	
14	1995.78	99.09	0.12	2007.27	1968.49	31.175	2.597	
15	2156.65	98.78	0.09	2186.09	2145.87	44.209	1.364	
16	2253.60	98.53	0.16	2272.99	2186.09	106.886	4.389	
17	2357.73	90.71	7.85	2400.10	2272.99	657.128	474.565	
18	2515.73	97.69	0.09	2529.37	2425.96	214.032	1.243	
19	2927.95	95.56	0.53	2969.61	2616.99	1209.193	32.224	
20	3295.65	92.17	0.26	3317.20	2969.61	2169.666	103.039	
21	3547.73	94.20	0.05	3562.09	3538.39	136.903	0.656	
22	3608.05	94.31	0.33	3644.68	3591.54	287.496	9.010	
23	3674.84	95.15	0.25	3702.13	3661.92	188.176	5.476	
24	3738.04	94.05	1.94	3778.26	3702.13	375.378	71.682	
25	3855.10	94.72	0.57	4000.17	3826.38	767.876	28.434	

Enkapsulat Antosianin (1,5% Alginat, 2% Pektin)



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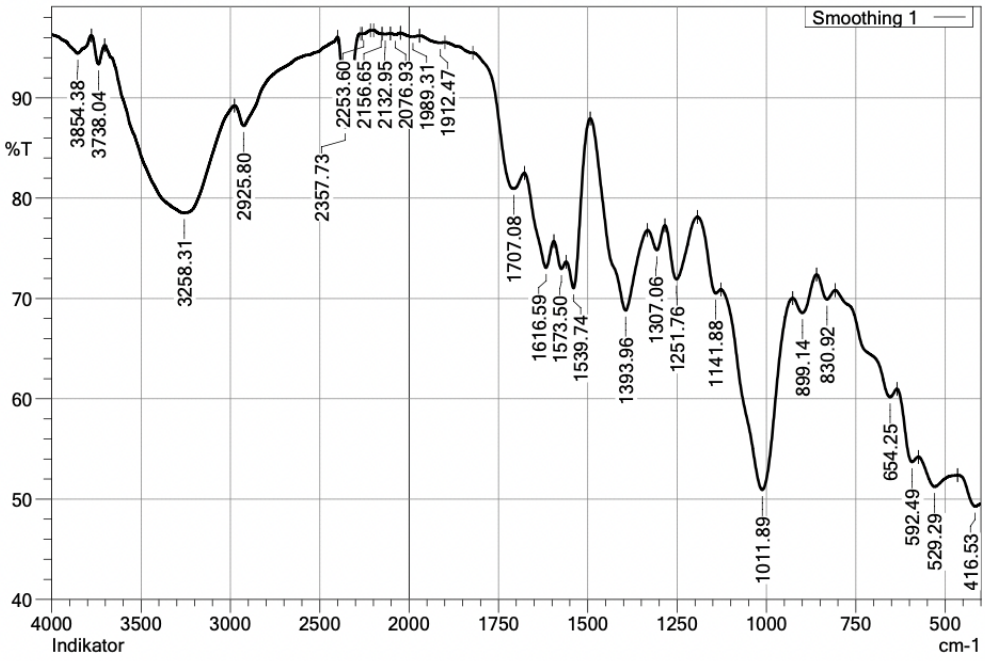
	Score	Library	Name	Comment
1	737	174 - ATR-Polymer2	D_Tencel	Tencel(LENZING Coorporation) DuraSamplIR-II
2	731	11 - ATR-Polymer2	D_Cellulose4	Bemberg(Cupra) DuraSamplIR-I
3	720	19 - A_FoodAdditives2	A_Carboxymethyl Cellulose Calcium-4	Carboxymethyl Cellulose Calcium(Product name;E.C.G-FACSales origin;Gotoku CHEMICAL CO.,LTD.)@DuraSamplIR2(diamond)
4	720	4 - ATR-Organic2	D_Starch	Soluble Starch DuraSamplIR
5	716	8 - IRs Polymer2	CELLOPHA	Cellulose ATR/diamond ATRcorrected
6	712	50 - A_FoodAdditives2	A_Powdered Cellulose-4	Powdered Cellulosec(Product name;VITACEL L-600CSales origin;TOAKASEI CO.,LTD.)@DuraSamplIR2(diamond)
7	710	1 - gula dan karbo	xylan polisakarida1	
8	707	4 - T-Organic2	Starch	Soluble Starch Transmission
9	705	20 - A_FoodAdditives2	A_Carboxymethyl Cellulose Sodium Salt-4	Carboxymethyl Cellulose Sodium Salt(Sales origin;Wako Pure Chemical Industries, Ltd.)@DuraSamplIR2(diamond)
10	705	20 - A_FoodAdditives2	A_Carboxymethyl Cellulose Calcium-4	Carboxymethyl Cellulose Calcium(Product name;E.C.G-FACSales origin;Gotoku CHEMICAL CO.,LTD.)@KBr Wafer
11	702	27 - ATR-Polymer2	D_Polyacetylene	Polyacetylene DuraSamplIR-II
12	701	43 - A_FoodAdditives2	A_Microfibrillated Cellulose_100G-4	Microfibrillated Cellulose(Product name;CELISH FD-100GCSales origin;Daicel Chemical Industries Ltd.)@DuraSamplIR2(diamond)
13	692	42 - A_FoodAdditives2	A_Microfibrillated Cellulose_100F-4	Microfibrillated Cellulose(Product name;CELISH FD-100FCSales origin;Daicel Chemical Industries Ltd.)@DuraSamplIR2(diamond)
14	691	27 - T-Polymer2	Polyacetylene	Polyacetylene Transmission(Microscope)
15	687	122 - IRs ATR Reagent2	122	Carminic Acid C22H20O13 ATR/diamond molecular weight:492.39 powder

16	685	41 - A_FoodAdditives2	A_Microcrystalline Cellulose_102-4	Microcrystalline Cellulose(Product name;VIVAPUR102CSales origin;TOAKASEI CO.,LTD.)@DuraSamplIR2(diamond)
17	683	44 - A_FoodAdditives2	A_Microfibrillated Cellulose_200L-4	Microfibrillated Cellulose(Product name;CELISH FD-200LCSales origin;Daicel Chemical Industries Ltd.)@DuraSamplIR2(diamond)
18	683	8 - ATR-Polymer2	D_Cellulose2	Paper DuraSamplIR-II
19	682	21 - T_FoodAdditives2	T_Carboxymethyl Cellulose Sodium Salt-4	Carboxymethyl Cellulose Sodium Salt(Sales origin;Wako Pure Chemical Industries, Ltd.)@KBr Wafer
20	681	45 - ATR-Organic2	D_Algin	Alginic Acid, Sodium Salt DuraSamplIR-II
21	680	11 - ATR-Inorganic2	D_Na3PO4	Na3PO4 12H2O DuraSamplIR
22	680	3 - T-Inorganic2	TALC	TALC/3Mg4SiO2H2O Transmission
23	678	22 - ATR-Polymer2	D_Protein2	Protein(Soy Bean Powder) DuraSamplIR-II
24	676	40 - A_FoodAdditives2	A_Microcrystalline Cellulose_101-4	Microcrystalline Cellulose(Product name;VIVAPUR101CSales origin;TOAKASEI CO.,LTD.)@DuraSamplIR2(diamond)
25	676	11 - T-Inorganic2	Na3PO4	Na3PO4 12H2O Transmission
26	675	30 - ATR-Inorganic2	D_TALC4	TALC(Polyethylene, Chlorinated/Chlorine content 48%) DuraSamplIR-II
27	672	63 - IRs Polymer2	RAYON	Rayon Fiber ATR/diamond ATRcorrected
28	671	10 - ATR-Polymer2	D_Cellulose3	Cotton DuraSamplIR-II
29	671	49 - T_FoodAdditives2	T_Powdered Cellulose-4	Powdered Cellulosec(Product name;VITACEL L-600CSales origin;TOAKASEI CO..LTD.)@KBr
30	671	27 - ATR-Inorganic2	D_TALC2	TALC(with Polyethylene, Chlorinated /Chlorine content 25%) DuraSamplIR-II
31	669	31 - ATR-Inorganic2	D_TALC5	TALC(Polyethylene, Chlorosulfonated) DuraSamplIR-II
32	667	111 - IRs ATR Reagent2	111	Dextran 2000 (C6H10O5)n ATR/diamond molecular weight:180000`210000 powder
33	667	5 - IRs Polymer2	BEMBERG	Bemberg(Cupra) Fiber ATR/diamond ATRcorrected
34	667	230 - IRs ATR Reagent2	230	alpha-Cyclodextrin (C6H10O5)6 ATR/diamond molecular weight:972.85 powder
35	666	231 - IRs ATR Reagent2	231	beta-Cyclodextrin (C6H10O5)7 ATR/diamond molecular weight:1135.00 powder
36	663	12 - ATR-Polymer2	D_Cellulose5	Ramie DuraSamplIR-II

37	663	41 - T_FoodAdditives2	T_Microcrystalline Cellulose_101-4	Microcrystalline Cellulose(Product name;VIVAPUR101CSales origin;TOAKASEI CO.,LTD.)@KBr Wafer
38	662	184 - ATR-Polymer2	D_Methylcellulose	Methylcellulose_DuraSamplIR
39	660	29 - ATR-Inorganic2	D_TALC3	TALC(with Polyethylene, Chlorinated /Chlorine content 42%)_DuraSamplIR-II
40	659	111 - ATR-Polymer2	D_Methyl_Cellulose	Methyl Cellulose(Methoxyl content 30%)_DuraSamplIR-II
41	658	6 - ATR-Organic2	D_Glucose	D(+)-Glucose_DuraSamplIR
42	656	3 - IRs Polymer2	ARABIC	Arabic gum Film
43	655	165 - IRs ATR Reagent2	165	Soluble Starch ATR/diamond molecular weight: powder
44	655	42 - T_FoodAdditives2	T_Microcrystalline Cellulose_102-4	Microcrystalline Cellulose(Product name;VIVAPUR102CSales origin;TOAKASEI CO.,LTD.)@KBr Wafer
45	655	43 - ATR-Organic2	D_HumicAcid	HumicAcid_DuraSamplIR
46	653	29 - T-Inorganic2	T_Na6Al6Si6O24S4	Na6Al6Si6O24S4, Transmission(Microscope), Pig No. B-29, Ultramarine, CAS No. 57455-37-5
47	651	43 - T_FoodAdditives2	T_Microfibrillated Cellulose_200L-4	Microfibrillated Cellulose(Product name;CELISH FD-200LCSales origin;Daicel Chemical Industries Ltd.)@KBr Wafer
48	647	110 - ATR-Polymer2	D_Hydroxypropyl_Methyl_Cellulose	Hydroxypropyl Methyl Cellulose(10% Hydroxypropyl, 30% Methoxyl)_DuraSamplIR-II
49	647	6 - T-Inorganic2	Glass2	Glass_Transmission
50	647	143 - T-Polymer2	T_Tencel	Tencel(LENZING Coorporation) Transmission(Microscope)



C:¥LabSolutions¥LabSolutionsIR¥Data¥310123Matthew¥Nkapsulat4.ispd

Indikator

	Item	Value
2	Sample name	N kapsulat
3	Sample ID	
4	Option	
5	Intensity Mode	%Transmittance
6	Apodization	Happ-Genzel
9	No. of Scans	5
10	Resolution	2 cm-1

	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area	Comment
1	416.53	49.28	0.96	465.37	400.02	3226.807	21.066	
2	529.29	51.24	2.21	574.53	465.37	5211.312	112.383	
3	592.49	53.71	2.51	634.86	574.53	2636.339	77.669	
4	654.25	60.16	1.91	807.93	634.86	5987.263	85.051	
5	830.92	69.91	1.61	859.64	807.93	1510.568	42.598	
6	899.14	68.57	2.43	926.43	859.64	2007.044	84.954	
7	1011.89	50.92	19.49	1127.52	926.43	7788.758	1851.057	
8	1141.88	70.53	1.94	1193.59	1127.52	1727.648	43.578	
9	1251.76	71.93	5.67	1284.08	1193.59	2271.903	255.247	
10	1307.06	74.83	2.25	1332.91	1284.08	1173.761	53.547	
11	1393.96	68.82	12.24	1493.06	1332.91	3893.695	1072.909	
12	1539.74	71.04	7.02	1560.57	1493.06	1487.024	190.794	
13	1573.50	72.97	1.45	1595.04	1560.57	898.267	25.500	
14	1616.59	73.08	4.41	1677.63	1595.04	1915.484	190.862	
15	1707.08	80.95	4.03	1821.26	1677.63	1773.297	123.704	
16	1912.47	95.49	0.18	1970.64	1899.54	302.341	8.897	
17	1989.31	96.10	0.17	2048.20	1970.64	290.887	7.041	
18	2076.93	96.31	0.14	2104.22	2048.20	202.722	3.945	
19	2132.95	96.35	0.06	2150.90	2104.22	168.929	1.331	
20	2156.65	96.38	0.05	2198.30	2150.90	164.673	1.828	
21	2253.60	96.39	0.07	2261.50	2215.54	159.358	1.600	
22	2357.73	87.08	9.10	2400.10	2270.12	1035.608	546.618	
23	2925.80	87.21	2.62	2976.79	2400.10	4369.664	129.494	
24	3258.31	78.55	13.01	3703.57	2976.79	11394.411	5752.582	
25	3738.04	93.38	2.32	3777.54	3703.57	398.584	82.948	
26	3854.38	94.44	1.81	4000.17	3777.54	1021.369	187.784	

Lampiran 13. Dokumentasi Penelitian

Ubi jalar ungu

Preparasi ubi ungu

Pengukusan ubi ungu

Shock cooling setelah pengukusan

Penghalusan ubi ungu

Penambahan etanol-asam sitrat pada ubi ungu

Proses inkubasi ekstrak selama 12 jam

Hasil ekstraksi sebelum disaring

Penyaringan ekstrak antosianin

Hasil ekstraksi antosianin ubi ungu

Ekstrak antosianin dievaporasi

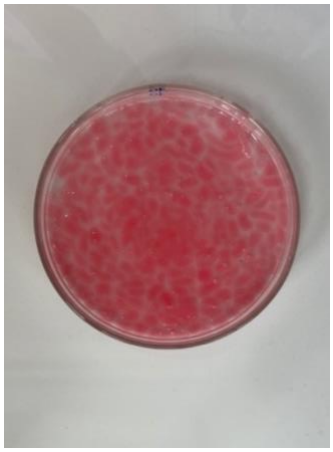
Hasil evaporasi antosianin ubi ungu

Ekstrak antosianin 70-80^{o}Brix

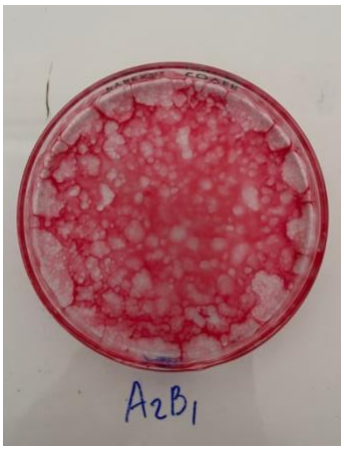
Homogenisasi suspensi

Pembuatan enkapsulat

Perendaman beads pada larutan $CaCl_2$

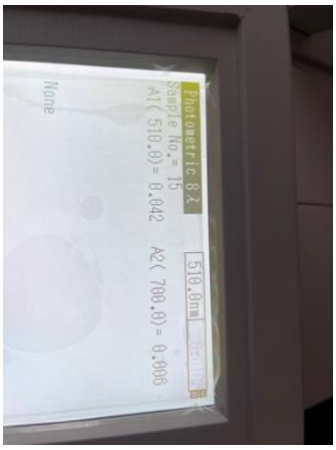


Enkapsulat basah



Enkapsulat kering

Pengujian antosianin sampel



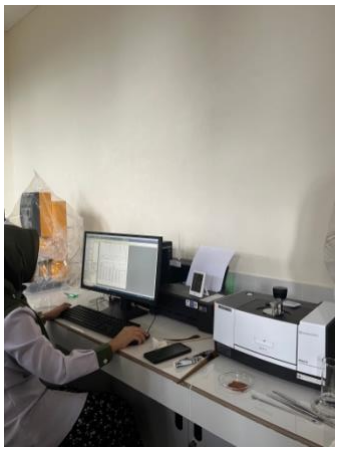
Hasil pembacaan absorbansi pada spektrofotometer

Preparasi pengujian antioksidan sampel

Preparasi pengujian kelarutan

Preparasi pengujian release antosianin

Pengujian warna menggunakan instrumen *colorimeter*



Penggunaan FTIR

Sampel enkapsulat antosianin

Lampiran 14. Dokumentasi Enkapsulat Antosianin