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LAMPIRAN

Lampiran 1 Data Hasil Penelitian

1. Data 01. Kadar Serat

Kadar Serat						
Metode Fermentasi	Caulerpa sp.			Codium sp.		
	U1	U2	U3	U1	U2	U3
Tanpa Fermentasi	10,04	10,58	10,08	9,19	9,14	9,07
Fermentasi Spontan	6,49	6,43	6,86	5,14	5,13	5,23
Fermentasi BAL	8,90	8,67	8,92	7,51	7,57	7,55

Descriptive Statistics				
Dependent Variable: Kadar_Serat				
Fermentasi	Rumput_laut	Mean	Std. Deviation	N
Tanpa Fermentasi	Caulerpa	10,2333	,30089	3
	Codium	9,1333	,06028	3
	Total	9,6833	,63298	6
Spontan	Caulerpa	6,6133	,21362	3
	Codium	5,1667	,05508	3
	Total	5,8900	,80456	6
Starter	Caulerpa	8,8300	,13892	3
	Codium	7,5433	,03055	3
	Total	8,1867	,71046	6
Total	Caulerpa	8,5589	1,59289	9
	Codium	7,2811	1,72939	9
	Total	7,9200	1,74173	18

Tests of Between-Subjects Effects					
Dependent Variable: Kadar_Serat					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Model	1180,321 ^a	6	196,720	7238,272	<,001
Fermentasi	43,808	2	21,904	805,955	<,001
Rumput_laut	7,347	1	7,347	270,339	<,001
Fermentasi * Rumput_laut	,090	2	,045	1,661	,231
Error	,326	12	,027		
Total	1180,647	18			

a. R Squared = 1,000 (Adjusted R Squared = 1,000)

Kadar_Serat				
Duncan ^{a,b}				
Fermentasi	N	Subset		
		1	2	3
Spontan	6	5,8900		
Starter	6		8,1867	
Tanpa Fermentasi	6			9,6833
Sig.		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) = ,027.
Mean Sample Size = 6,000.



2. Data 02. Kadar Abu

Kadar Abu						
Metode Fermentasi	<i>Caulerpa</i> sp.			<i>Codium</i> sp.		
	U1	U2	U3	U1	U2	U3
Tanpa Fermentasi	1,17	1,17	1,19	1,24	1,21	1,21
Fermentasi Spontan	1,11	1,10	1,11	1,16	1,16	1,17
Fermentasi Starter	1,05	1,08	1,08	1,10	1,09	1,10

Descriptive Statistics				
Dependent Variable: Kadar_Abu				
Tanpa Fermentasi	Cauulerpa sp	1,1767	,01155	3
	Codium sp	1,2200	,01732	3
	Total	1,1983	,02714	6
Spontan	Cauulerpa sp	1,1067	,00577	3
	Codium sp	1,1633	,00577	3
	Total	1,1350	,03146	6
Starter	Cauulerpa sp	1,0700	,01732	3
	Codium sp	1,0967	,00577	3
	Total	1,0833	,01862	6
Total	Cauulerpa sp	1,1178	,04816	9
	Codium sp	1,1600	,05431	9
	Total	1,1389	,05433	18

Tests of Between-Subjects Effects					
Dependent Variable: Kadar_Abu					
Corrected Model	,049 ^a	5	,010	69,856	<,001
Intercept	23,347	1	23,347	168100,000	<,001
Fermentasi	,040	2	,020	143,320	<,001
Rumput_Laut	,008	1	,008	57,760	,121
Fermentasi * Rumput_Laut	,001	2	,000	2,440	,129
Error	,002	12	,000		
Total	23,397	18			
Corrected Total	,050	17			

a. R Squared = ,967 (Adjusted R Squared = ,953)

Kadar_Abu				
Duncan ^{a,b}				
Fermentasi	N	Subset		
		1	2	3
Starter	6	1,0833		
Spontan	6		1,1350	
Tanpa Fermentasi	6			1,1983
Sig.		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) = ,000.
a. Uses Harmonic Mean Sample Size = 6,000.
b. Alpha = ,05.

3. Data 03. Kadar Air



Kadar Air						
tasi	<i>Caulerpa</i> sp.			<i>Codium</i> sp.		
	U1	U2	U3	U1	U2	U3
asi	17,20	17,20	17,30	17,00	17,10	17,00
	15,60	15,50	15,60	15,00	15,00	15,00
	15,70	15,80	15,80	15,20	15,10	15,10

Descriptive Statistics				
Dependent Variable: Kadar_Air				
Tanpa Fermentasi	Caulerpa sp	17,2333	,05774	3
	Codium sp	17,0333	,05774	3
	Total	17,1333	,12111	6
Spontan	Caulerpa sp	15,5667	,05774	3
	Codium sp	15,0000	,00000	3
	Total	15,2833	,31252	6
Starter	Caulerpa sp	15,7667	,05774	3
	Codium sp	15,1333	,05774	3
	Total	15,4500	,35071	6
Total	Caulerpa sp	16,1889	,78969	9
	Codium sp	15,7222	,98587	9
	Total	15,9556	,89916	18

Tests of Between-Subjects Effects					
Dependent Variable: Kadar_Air					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	13,711 ^a	5	2,742	987,200	<,001
Intercept	4582,436	1	4582,436	1649676,800	<,001
Fermentasi	12,568	2	6,284	2262,200	<,001
Rumput_Laut	,980	1	,980	352,800	<,001
Fermentasi * Rumput_Laut	,163	2	,082	29,400	<,001
Error	,033	12	,003		
Total	4596,180	18			
Corrected Total	13,744	17			

a. R Squared = ,998 (Adjusted R Squared = ,997)

Kadar_Air				
Duncan ^{a,b}				
Fermentasi	N	Subset		
		1	2	3
Spontan	6	15,2833		
Starter	6		15,4500	
Tanpa Fermentasi	6			17,1333
Sig.		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) = ,003.
a. Uses Harmonic Mean Sample Size = 6,000.
b. Alpha = ,05.

4. Data 04 Aktivitas Antioksidan

Aktivitas Antioksidan						
Metode Fermentasi	Caulerpa sp.			Codium sp.		
	U1	U2	U3	U1	U2	U3
Tanpa Fermentasi	1600,17	1608,00	1602,58	1665,86	1668,19	1669,13
Spontan	1705,78	1701,08	1702,88	1704,48	1702,85	1705,81
Starter	1445,06	1443,81	1441,76	1488,42	1483,24	1483,75



Descriptive Statistics			
e: Antiosidan			
Input_Laut	Mean	Std. Deviation	N
lerpa sp	1603,5833	4,01027	3
ium sp	1667,7267	1,68352	3
al	1635,6550	35,24027	6

Spontan	Caulerpa sp	1703,2467	2,37136	3
	Codium sp	1704,3800	1,48253	3
	Total	1703,8133	1,87452	6
Starter	Caulerpa sp	1443,5433	1,66608	3
	Codium sp	1485,1367	2,85486	3
	Total	1464,3400	22,87733	6
Total	Caulerpa sp	1583,4578	113,49029	9
	Codium sp	1619,0811	101,72056	9
	Total	1601,2694	106,14295	18

Tests of Between-Subjects Effects					
Dependent Variable: Antioksidan					
Corrected Model	191452,216 ^a	5	38290,443	6099,832	<,001
Intercept	46153149,007	1	46153149,007	7352395,115	<,001
Fermentasi	182683,730	2	91341,865	14551,152	<,001
Rumput_Laut	5710,598	1	5710,598	909,723	,211
Fermentasi * Rumput_Laut	3057,887	2	1528,944	243,567	<,001
Error	75,328	12	6,277		
Total	46344676,550	18			
Corrected Total	191527,543	17			

Antiosidan				
Duncan ^a				
		Subset for alpha = 0.05		
Fermentasi	N	1	2	3
Starter	6	1464,3400		
Faktor	6		1635,6550	
Spontan	6			1703,8133
Sig.		1,000	1,000	1,000
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 6,000.				

5. Data 05. Ketebalan Roti Canai

Metode Fermentasi	Ketebalan					
	Caulerpa sp.			Codium sp.		
	U1	U2	U3	U1	U2	U3
Tanpa fermentasi	1,64	1,66	1,54	1,68	1,70	1,66
Spontan	2,56	2,54	2,60	2,60	2,62	2,60
Starter	2,46	2,40	2,50	2,54	2,60	2,64

Dependent Variable: Ketebalan				
Tanpa fermentasi	Caulerpa sp	1,6133	,06429	3
	Codium sp	1,6800	,02000	3
	Total	1,6467	,05610	6
Spontan	Caulerpa sp	2,5667	,03055	3
	Codium sp	2,6067	,01155	3
	Total	2,5867	,03011	6
Starter	Caulerpa sp	2,4533	,05033	3
	Codium sp	2,5933	,05033	3
	Total	2,5233	,08892	6
Total	Caulerpa sp	2,2111	,45311	9
	Codium sp	2,2933	,46087	9
	Total	2,2522	,44538	18



Tests of Between-Subjects Effects					
Dependent Variable: Ketebalan					
Corrected Model	3,351 ^a	5	,670	376,963	<,001
Intercept	91,305	1	91,305	51359,112	<,001
Fermentasi	3,312	2	1,656	931,588	<,001
Rumput_laut	,030	1	,030	17,113	,135
Fermentasi * Rumput_laut	,008	2	,004	2,263	,001
Error	,021	12	,002		
Total	94,677	18			
Corrected Total	3,372	17			

a. R Squared = ,994 (Adjusted R Squared = ,991)

Ketebalan			
Duncan ^{a,b}			
Fermentasi	N	Subset for alpha = 0.05	
		1	2
Tanpa Fermentasi	9	1,6222	
Starter	6		2,5233
Spontan	6		2,5867
Sig.		1,000	,093

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 6,750.
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

6. Data 06. Intensitas Warna

Intensitas Warna						
Metode Fermentasi	Caulerpa sp.			Codium sp.		
	U1	U2	U3	U1	U2	U3
Tanpa fermentasi	25,0	24,9	25,0	25,7	25,8	25,7
Spontan	24,8	24,6	24,7	25,5	24,6	25,7
Starter	24,5	24,4	24,4	25,4	25,5	25,5

Descriptive Statistics				
Dependent Variable: Intensitas_Warna				
Tanpa fermentasi	Caulerpa sp	24,967	,0577	3
	Codium sp	25,733	,0577	3
	Total	25,350	,4231	6
Spontan	Caulerpa sp	24,700	,1000	3
	Codium sp	25,267	,5859	3
	Total	24,983	,4875	6
Starter	Caulerpa sp	24,433	,0577	3
	Codium sp	25,467	,0577	3
	Total	24,950	,5683	6
Total	Caulerpa sp	24,700	,2398	9
	Codium sp	25,489	,3586	9
	Total	25,094	,5023	18

Tests of Between-Subjects Effects					
Dependent Variable: Intensitas_Warna					
	Type III Sum of Squares	df	Mean Square	F	Sig.
	3,556 ^a	5	,711	11,638	<,001
	11335,161	1	11335,161	185484,445	<,001
	,591	2	,296	4,836	,029
	2,801	1	2,801	45,827	<,001
ut_Laut	,164	2	,082	1,345	,297



Error	,733	12	,061		
Total	11339,450	18			
Corrected Total	4,289	17			

Intensitas_Warna			
Duncan ^{a,b}			
Fermentasi	N	Subset	
		1	2
Starter	6	24,950	
Spontan	6	24,983	
Tanpa fermentasi	6		25,350
Sig.		,819	1,000
Means for groups in homogeneous subsets are displayed. Based on observed means. The error term is Mean Square(Error) = ,061. a. Uses Harmonic Mean Sample Size = 6,000. b. Alpha = ,05.			

7. Data 07. Organoleptik Warna

Organoleptik Warna						
Metode Fermentasi	Caulerpa sp.			Codium sp.		
	U1	U2	U3	U1	U2	U3
Tanpa fermentasi	2,80	2,88	2,84	2,40	2,16	2,36
Spontan	1,44	1,44	1,40	1,32	1,36	1,28
Starter	4,92	4,88	4,64	3,88	3,60	3,84

Descriptive Statistics				
Dependent Variable: Warna_Organol				
Fermentasi	Rumput_laut	Mean	Std. Deviation	N
Tanpa fermentasi	Caulerpa sp	2,8400	,04000	3
	Codium sp	2,3067	,12858	3
	Total	2,5733	,30428	6
Spontan	Caulerpa sp	1,4267	,02309	3
	Codium sp	1,3200	,04000	3
	Total	1,3733	,06532	6
Starter	Caulerpa sp	4,8133	,15144	3
	Codium sp	3,7733	,15144	3
	Total	4,2933	,58551	6
Total	Caulerpa sp	3,0267	1,47526	9
	Codium sp	2,4667	1,07387	9
	Total	2,7467	1,28448	18

a. R Squared = ,829 (Adjusted R Squared = ,758)

Dependent Variable: Warna_Organol					
Corrected Model	27,916 ^a	5	5,583	506,535	<,001
Intercept	135,795	1	135,795	12320,129	<,001
Fermentasi	25,850	2	12,925	1172,613	<,001
Rumput_laut	1,411	1	1,411	128,032	<,001
Fermentasi * Rumput_laut	,655	2	,327	29,710	<,001
Error	,132	12	,011		
	163,843	18			
	28,048	17			



Warna_Organol				
Duncan ^a				
Fermentasi	N	Subset for alpha = 0.05		
		1	2	3
Spontan	6	1,3733		
Tanpa Fermentasi	6		2,5733	
Starter	6			4,2933
Sig.		1,000	1,000	1,000
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 6,000.				

8. Data 08. Organoleptik Aroma

Organoleptik Aroma						
Metode Fermentasi	Caulerpa sp.			Codium sp.		
	U1	U2	U3	U1	U2	U3
Tanpa Fermentasi	2,16	2,08	2,12	2,08	2,08	2,08
Spontan	1,16	1,12	1,12	1,16	1,16	1,20
Starter	4,76	4,72	4,72	4,08	4,00	4,04

Descriptive Statistics				
Dependent Variable: Aroma				
Tanpa fermentasi	Caulerpa sp	2,1200	,04000	3
	Codium sp	2,0800	,00000	3
	Total	2,1000	,03347	6
Spontan	Caulerpa sp	1,1333	,02309	3
	Codium sp	1,1733	,02309	3
	Total	1,1533	,03011	6
Tekstur	Caulerpa sp	4,7333	,02309	3
	Codium sp	4,0400	,04000	3
	Total	4,3867	,38088	6
Total	Caulerpa sp	2,6622	1,61122	9
	Codium sp	2,4311	1,26914	9
	Total	2,5467	1,41202	18

a. R Squared = ,995 (Adjusted R Squared = ,993)

Dependent Variable: Aroma					
Corrected Model	33,885 ^a	5	6,777	8471,200	<,001
Intercept	116,739	1	116,739	145924,000	<,001
Fermentasi	33,159	2	16,579	20724,333	<,001
Rumput_Laut	,240	1	,240	300,444	,146
Fermentasi * Rumput_Laut	,486	2	,243	303,444	<,001
Error	,010	12	,001		
Total	150,634	18			
Corrected Total	33,894	17			

a. R Squared = 1,000 (Adjusted R Squared = 1,000)

Aroma				
Duncan ^{a,b}				
Fermentasi	N	Subset		
		1	2	3
	6	1,1533		
	6		2,1000	
	6			4,3867
		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) = ,001.

a. Uses Harmonic Mean Sample Size = 6,000.

b. Alpha = ,05.

9. Data 09. Organoleptik Tekstur

Organoleptik Tekstur						
Metode Fermentasi	<i>Caulerpa</i> sp.			<i>Codium</i> sp.		
	U1	U2	U3	U1	U2	U3
Tanpa fermentasi	3,72	3,76	3,72	3,16	3,12	3,12
Spontan	3,32	3,32	3,28	3,04	3,04	3,00
Starter	3,76	3,80	3,80	3,24	3,20	3,28

Descriptive Statistics				
Dependent Variable: Tekstur				
Tanpa fermentasi	Caulerpa sp	3,7333	,02309	3
	Codium sp	3,1333	,02309	3
	Total	3,4333	,32928	6
Spontan	Caulerpa sp	3,3067	,02309	3
	Codium sp	3,0267	,02309	3
	Total	3,1667	,15475	6
Starter	Caulerpa sp	3,7867	,02309	3
	Codium sp	3,2400	,04000	3
	Total	3,5133	,30084	6
Total	Caulerpa sp	3,6089	,22872	9
	Codium sp	3,1333	,09592	9
	Total	3,3711	,29801	18

Tests of Between-Subjects Effects					
Dependent Variable: Tekstur					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1,501 ^a	5	,300	422,225	<,001
Intercept	204,559	1	204,559	287661,125	<,001
Fermentasi	,395	2	,198	278,000	<,001
Rumput_Laut	1,018	1	1,018	1431,125	<,001
Fermentasi * Rumput_Laut	,088	2	,044	62,000	,126
Error	,009	12	,001		
Total	206,069	18			
Corrected Total	1,510	17			

a. R Squared = ,994 (Adjusted R Squared = ,992)

Tekstur		
Duncan ^a		
Fermentasi	N	Subset for alpha = 0.05
		1
Spontan	6	3,1667
Tanpa fermentasi	6	3,4333
Starter	6	3,5133
		,053

^a homogeneous subsets are displayed.

Mean Sample Size = 6,000.



10. Data 10. Organoleptik Rasa

Organoleptik Rasa						
Metode Fermentasi	Caulerpa sp.			Codium sp.		
	U1	U2	U3	U1	U2	U3
Tanpa fermentasi	3,12	3,08	3,16	2,88	2,96	2,88
Spontan	1,00	1,00	1,00	1,00	1,00	1,00
Starter	4,12	4,12	4,16	3,88	3,88	3,96

Descriptive Statistics				
Dependent Variable: Rasa				
Fermentasi	Rumput_Laut	Mean	Std. Deviation	N
Tanpa fermentasi	Caulerpa sp.	3,1200	,04000	3
	Codium sp.	2,9067	,04619	3
	Total	3,0133	,12307	6
Spontan	Caulerpa sp.	1,0000	,00000	3
	Codium sp.	1,0000	,00000	3
	Total	1,0000	,00000	6
Starter	Caulerpa sp.	4,1333	,02309	3
	Codium sp.	3,9067	,04619	3
	Total	4,0200	,12837	6
Total	Caulerpa sp.	2,7511	1,38489	9
	Codium sp.	2,6044	1,27929	9
	Total	2,6778	1,29553	18

Tests of Between-Subjects Effects					
Dependent Variable: Rasa					
Corrected Model	28,520 ^a	5	5,704	5347,483	<,001
Intercept	129,069	1	129,069	121002,083	<,001
Fermentasi	28,375	2	14,187	13300,583	<,001
Rumput_Laut	,097	1	,097	90,750	,153
Fermentasi * Rumput_Laut	,049	2	,024	22,750	<,001
Error	,013	12	,001		
Total	157,602	18			
Corrected Total	28,533	17			

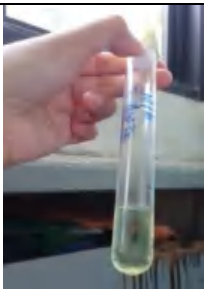
a. R Squared = 1,000 (Adjusted R Squared = ,999)

Rasa				
Duncan ^a				
Fermentasi	N	Subset for alpha = 0.05		
		1	2	3
Spontan	6	1,0000		
Tanpa fermentasi	6		3,0133	
Starter	6			4,0200
Sig.		1,000	1,000	1,000

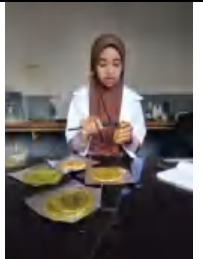
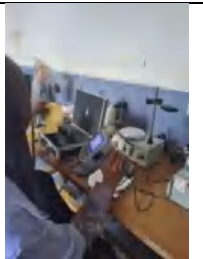
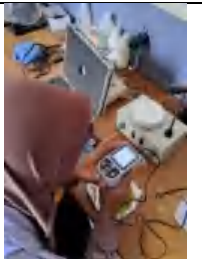
Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 6,000.



Lampiran 2. Dokumentasi Penelitian

Inkubasi, Pemurnian, Peremajaan BAL			
Pembuatan Starter, Pasteurisasi, dan Fermentasi rumput laut			
Pembuatan Roti Canai			
Uji Organoleptik			
Uji Kadar Air			
Uji Kadar Serat			



Uji Kadar Abu			
Uji Antioksidan			
Uji Ketebalan			
Uji Intensitas Warna			



RIWAYAT HIDUP



Sri Rasyida Nur Arifin atau yang akrab dipanggil Idha, lahir pada 10 November 2001 di Kab. Takalar, Sulawesi Selatan. Penulis merupakan anak ke empat dari empat bersaudara. Putri ke empat dari Bapak Arifin Dg. Lurang dan Ibu Basse Dg. Tarring. Tahun 2007 memulai sekolah dasar di SD Inpres 175 Bonto Baddo, dan Tahun 2013 melanjutkan sekolah menengah pertama di SMP 1 Mangarabombang. Tahun 2016 Melanjutkan sekolah menengah atas di SMA Negeri 02 Takalar. Pada tahun 2019 diterima sebagai Mahasiswa Program Studi Ilmu dan Teknologi Pangan, fakultas Pertanian, Universitas Hasanuddin melalui jalur Seleksi Bersama Masuk Perguruan Tinggi Negeri (SBMPTN). Pada tahun 2022 melaksanakan Kuliah Kerja Nyata di Desa Tombang, Kec. Walenrang, Kab. Luwu, Provinsi Sulawesi Selatan. Tahun 2022 pada tanggal 04 Oktober s/d 04 November melaksanakan magang di PT. Perkebunan Nusantara XIV Pabrik Gula Takalar. Penulis mendapatkan penghargaan Karya Terbaik Lomba Cipta Puisi Tingkat Nasional Zen 3.0 oleh Zen Indonesia Witter Community pada Tahun 2022. Penulis juga mendapatkan bantuan dana/biaya penelitian pada program *Indofood Riset Nugraha* (IRN) 2023/2024 oleh PT. Indofood CPB. Sukses Makmur Tbk. Pada tanggal 02 Agustus penulis dinyatakan lulus ujian sarjana setelah memenuhi beberapa syarat kelulusan sebagai S.PT (Sarjana Teknologi Pertanian).

