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LAMPIRAN

Lampiran 1 Hasil analisa kadar karbohidrat biji labu kuning tiap perlakuan

Lampiran 1a. Tabel pengamatan analisa kadar karbohidrat biji labu kuning tiap perlakuan

Perlakuan	Ulangan		Rata-rata
	I	II	
Tanpa perlakuan	14,52	14,48	14,50±0,03
Perendaman	13,90	13,86	13,88±0,03
Fermentasi	13,11	13,07	13,09±0,03
Perkecambahan	13,00	12,94	12,97±0,04
Rata-rata	13,63	13,59	13,61±

Lampiran 1b. Analisis Sidik Ragam (ANOVA) dari analisa kadar karbohidrat biji labu kuning

Descriptives

Karbohidrat%

Perlakuan	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minim um	Maxim um
					Lower Bound	Upper Bound		
Tanpa perlakuan	3	14.5000	.02000	.01155	14.4503	14.5497	14.48	14.52
Perendaman	3	13.8800	.02000	.01155	13.8303	13.9297	13.86	13.90
Fermentasi	3	13.0900	.02000	.01155	13.0403	13.1397	13.07	13.11
Perkecambahan	3	12.9700	.03000	.01732	12.8955	13.0445	12.94	13.00
Total	12	13.6100	.64942	.18747	13.1974	14.0226	12.94	14.52

ANOVA

Karbohidrat%

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.635	3	1.545	2.943E3	.000
Within Groups	.004	8	.001		
Total	4.639	11			

Lampiran 1c. Uji lanjut (DUNCAN) dari analisa kadar karbohidrat biji labu kuning

Karbohidrat%

Duncan

Perlakuan	N	Subset for alpha = 0.05			
		1	2	3	4
Perkecambahan	3	12.9700			
Fermentasi	3		13.0900		
Perendaman	3			13.8800	
Tanpa perlakuan	3				14.5000
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Lampiran 2 Hasil analisa kadar protein biji labu kuning tiap perlakuan

Lampiran 2a. Tabel pengamatan analisa kadar protein biji labu kuning tiap perlakuan

Perlakuan	Ulangan		Rata-rata
	I	II	
Tanpa perlakuan	38,298	38,292	38,295± 0,004
Perendaman	38,930	38,891	38,911± 0,028
Fermentasi	36,603	36,610	36,607± 0,005
Perkecambahan	39,849	39,853	39,851± 0,003
Rata-rata	38,420	38,412	38,416

Lampiran 2b. Analisis Sidik Ragam (ANOVA) dari analisa kadar protein biji labu kuning

Descriptives

Protein%

Perlakuan	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minim um	Maxim um
					Lower Bound	Upper Bound		
Tanpa perlakuan	3	38.2950	.00300	.00173	38.2875	38.3025	38.29	38.30
Perendaman	3	38.9107	.01950	.01126	38.8622	38.9591	38.89	38.93
Fermentasi	3	36.6067	.00351	.00203	36.5979	36.6154	36.60	36.61
Perkecambahan	3	39.8510	.00200	.00115	39.8460	39.8560	39.85	39.85
Total	12	38.4158	1.23500	.35651	37.6311	39.2005	36.60	39.85

ANOVA

Protein %

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16.777	3	5.592	5.514E4	.000
Within Groups	.001	8	.000		
Total	16.778	11			

Lampiran 2c. Uji lanjut (DUNCAN) dari analisa kadar Protein biji labu kuning

Protein %

Duncan

Perlakuan	N	Subset for alpha = 0.05			
		1	2	3	4
Fermentasi	3	36.6067			
Tanpa perlakuan	3		38.2950		
Perendaman	3			38.9107	
Perkecambahan	3				39.8510
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Lampiran 3 Hasil analisa kadar lemak biji labu kuning tiap perlakuan

Lampiran 3a. Tabel pengamatan analisa kadar lemak biji labu kuning tiap perlakuan

Perlakuan	Ulangan		Rata-rata
	I	II	
Tanpa perlakuan	32,27	31,96	32,12±0,22
Perendaman	31,84	31,77	31,81±0,05
Fermentasi	34,71	34,72	34,72±0,01
Perkecambahan	32,08	32,01	32,05±0,05
Rata-rata	32,94	32,82	32,88

Lampiran 3b. Analisis Sidik Ragam (ANOVA) dari analisa kadar lemak biji labu kuning

Descriptives

lemak %

Perlakuan	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	Minim um	Maxim um	
					Lower Bound	Upper Bound		
Tanpa perlakuan	3	32.1167	.15503	.08950	31.7316	32.5018	31.96	32.27
Perendaman	3	31.8067	.03512	.02028	31.7194	31.8939	31.77	31.84
Fermentasi	3	34.7167	.00577	.00333	34.7023	34.7310	34.71	34.72
Perkecambahan	3	32.0467	.03512	.02028	31.9594	32.1339	32.01	32.08
Total	12	32.6717	1.24096	.35823	31.8832	33.4601	31.77	34.72

ANOVA

lemak %

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16.887	3	5.629	848.578	.000
Within Groups	.053	8	.007		
Total	16.940	11			

Lampiran 3c. Uji lanjut (DUNCAN) dari analisa kadar lemak biji labu kuning

		lemak %			
Perlakuan	N	Subset for alpha = 0.05			
		1	2	3	4
Perendaman	3	31.8067			3
Perkecambahan	3		32.0467		3
Tanpa perlakuan	3		32.1167		3
Fermentasi	3			34.7167	3
Sig.		1.000	.323	1.000	

Means for groups in homogeneous subsets are displayed.

Lampiran 4 Hasil analisa kadar serat biji labu kuning tiap perlakuan

Lampiran 4a. Tabel pengamatan analisa kadar serat biji labu kuning tiap perlakuan

Perlakuan	Ulangan		Rata-rata
	I	II	
Tanpa perlakuan	8,02	8,05	8,04±0,02
Perendaman	7,70	7,68	7,69±0,01
Fermentasi	7,29	7,33	7,31±0,03
Perkecambahan	6,80	6,77	6,79±0,02
Rata-rata	7,45	7,46	7,46

Lampiran 4b. Analisis Sidik Ragam (ANOVA) dari analisa kadar serat biji labu kuning

Descriptives

serat %

Perlakuan	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	Minim um	Maxim um
Tanpa perlakuan	3	8.0367	.01528	.00882	7.9987 8.0746	8.02	8.05
Perendaman	3	7.6900	.01000	.00577	7.6652 7.7148	7.68	7.70
Fermentasi	3	7.3100	.02000	.01155	7.2603 7.3597	7.29	7.33
Perkecambahan	3	6.7867	.01528	.00882	6.7487 6.8246	6.77	6.80
Total	12	7.4558	.48483	.13996	7.1478 7.7639	6.77	8.05

ANOVA

serat %

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.584	3	.861	3.564E3	.000
Within Groups	.002	8	.000		
Total	2.586	11			

Lampiran 4c. Uji lanjut (DUNCAN) dari analisa kadar lemak biji labu kuning

serat %

Duncan

Perlakuan	N	Subset for alpha = 0.05			
		1	2	3	4
Perkecambahan	3	6.7867			
Fermentasi	3		7.3100		
Perendaman	3			7.6900	
Tanpa perlakuan	3				8.0367
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Lampiran 5 Hasil analisa kadar air biji labu kuning tiap perlakuan

Lampiran 5a. Tabel pengamatan analisa kadar air biji labu kuning tiap perlakuan

Perlakuan	Ulangan		Rata-rata
	I	II	
Tanpa perlakuan	2,57	2,50	2,54±0,05
Perendaman	2,99	2,94	2,97±0,04
Fermentasi	2,38	2,31	2,35±0,05
Perkecambahan	3,71	3,70	3,71±0,01
Rata-rata	2,91	2,86	2,89

Lampiran 5b. Analisis Sidik Ragam (ANOVA) dari analisa kadar air biji labu kuning

Descriptives

Kadar air %

Perlakuan	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minim um	Maxim um
					Lower Bound	Upper Bound		
Tanpa perlakuan	3	2.5367	.03512	.02028	2.4494	2.6239	2.50	2.57
Perendaman	3	2.9667	.02517	.01453	2.9042	3.0292	2.94	2.99
Fermentasi	3	2.3467	.03512	.02028	2.2594	2.4339	2.31	2.38
Perkecambahan	3	3.7067	.00577	.00333	3.6923	3.7210	3.70	3.71
Total	12	2.8892	.54647	.15775	2.5420	3.2364	2.31	3.71

ANOVA

Kadar air %

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.279	3	1.093	1.395E3	.000
Within Groups	.006	8	.001		
Total	3.285	11			

Lampiran 5c. Uji lanjut (DUNCAN) dari analisa kadar air biji labu kuning

Kadar air %

Duncan

Perlakuan	N	Subset for alpha = 0.05			
		1	2	3	4
Fermentasi	3	2.3467			
Tanpa perlakuan	3		2.5367		
Perendaman	3			2.9667	
Perkecambahan	3				3.7067
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Lampiran 6 Hasil analisa kadar abu biji labu kuning tiap perlakuan

Lampiran 6a. Tabel pengamatan analisa kadar abu biji labu kuning tiap perlakuan

Perlakuan	Ulangan		Rata-rata
	I	II	
Tanpa perlakuan	3,05	3,01	3,03±0,03
Perendaman	2,61	2,59	2,60±0,01
Fermentasi	3,10	3,12	3,11±0,01
Perkecambahan	2,51	2,51	2,51±0,00
Rata-rata	2,82	2,81	2,81

Lampiran 6b. Analisis Sidik Ragam (ANOVA) dari analisa kadar abu biji labu kuning

Descriptives

Kadar abu %

Perlakuan	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minim um	Maxim um
					Lower Bound	Upper Bound		
Tanpa perlakuan	3	3.0300	.02000	.01155	2.9803	3.0797	3.01	3.05
Perendaman	3	2.6000	.01000	.00577	2.5752	2.6248	2.59	2.61
Fermentasi	3	3.1100	.01000	.00577	3.0852	3.1348	3.10	3.12
Perkecambahan	3	2.5100	.00000	.00000	2.5100	2.5100	2.51	2.51
Total	12	2.8125	.27280	.07875	2.6392	2.9858	2.51	3.12

ANOVA

Kadar abu %

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.817	3	.272	1.816E3	.000
Within Groups	.001	8	.000		
Total	.819	11			

Lampiran 6c. Uji lanjut (DUNCAN) dari analisa kadar abu biji labu kuning

Kadar abu %

Duncan

Perlakuan	N	Subset for alpha = 0.05			
		1	2	3	4
Fermentasi	3	2.5100			
Tanpa perlakuan	3		2.6000		
Perendaman	3			3.0300	
Perkecambahan	3				3.1100
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Lampiran 7 Hasil analisa kadar asam fitat biji labu kuning tiap perlakuan

Lampiran 7a. Tabel pengamatan analisa kadar asam fitat biji labu kuning tiap perlakuan

Perlakuan	Ulangan		Rata-rata
	I	II	
Tanpa perlakuan	0,2213	0,2207	0,2210±0,0004
Perendaman	0,1185	0,1191	0,1188±0,0004
Fermentasi	0,0727	0,0714	0,0721±0,0009
Perkecambahan	0,0622	0,0609	0,0616±0,0009
Rata-rata	0,1187	0,1180	0,1184

Lampiran 7b. Analisis Sidik Ragam (ANOVA) dari analisa kadar asam fitat biji labu kuning

Descriptives

Kadar asam fitat %

Perlakuan	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minim um	Maxim um
					Lower Bound	Upper Bound		
Tanpa perlakuan	3	.2210	.00030	.00017	.2203	.2217	.22	.22
Perendaman	3	.1188	.00030	.00017	.1181	.1195	.12	.12
Fermentasi	3	.0721	.00065	.00038	.0705	.0737	.07	.07
Perkecambahan	3	.0616	.00065	.00038	.0600	.0632	.06	.06
Total	12	.1184	.06586	.01901	.0765	.1602	.06	.22

ANOVA

Kadar asam fitat %

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.048	3	.016	6.196E4	.000
Within Groups	.000	8	.000		
Total	.048	11			

Lampiran 7c. Uji lanjut (DUNCAN) dari analisa kadar asam fitat biji labu kuning

Kadar ASAM FITAT %

Duncan

Perlakuan	N	Subset for alpha = 0.05			
		1	2	3	4
Perkecambahan	3	.0616			
Fermentasi	3		.0721		
Perendaman	3			.1188	
Tanpa perlakuan	3				.2210
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Lampiran 8 Hasil Uji Organoleptik dari pembuatan minuman fungsional minuman kecambah biji labu

Lampiran 8a. Tabel pengamatan Uji Organoleptik dari pembuatan minuman fungsional minuman kecambah biji labu

Formulasi	Paramater pengamatan	Ulangan		Rata-rata
		I	II	
1	Warna	2,94	2,88	2,91
	Aroma	3,06	3,24	3,15
	Kekentalan	2,65	2,82	2,74
	Rasa	2,88	2,71	2,79
2	Warna	3,35	3,29	3,32
	Aroma	3,29	3,35	3,32
	Kekentalan	3,24	3,06	3,15
	Rasa	3,06	3,06	3,06
3	Warna	3,76	3,65	3,71
	Aroma	3,59	3,12	3,35
	Kekentalan	3,29	3,29	3,29
	Rasa	3,41	3,24	3,32
4	Warna	3,82	3,82	3,82
	Aroma	3,59	3,53	3,56
	Kekentalan	3,24	3,35	3,29
	Rasa	3,24	3,06	3,15

Lampiran 8b. Tabel Rataan Uji Organoleptik dari pembuatan minuman fungsional minuman kecambah biji labu

Formulasi	Parameter pengamatan				Rata-rata
	warna	aroma	kekentalan	rasa	
1	2,91	3,15	2,74	2,79	2,90
2	3,32	3,32	3,15	3,06	3,21
3	3,71	3,35	3,29	3,32	3,42
4	3,82	3,56	3,29	3,15	3,46
Rata-rata	3,44	3,35	3,12	3,08	3,25

Lampiran 9 Hasil analisis protein dan mineral minuman fungsional minuman kecambah biji labu (Formulasi 4)

	Protein	Mg (ppm)	%	Zn (ppm)	%	Fe (ppm)	%
0,8400	75,4800	0,0075	4,1300	0,0004	4,0500	0,0004	
0,8500	78,7500	0,0079	4,2600	0,0004	5,0900	0,0005	
0,9000	78,9200	0,0079	3,0800	0,0003	4,1200	0,0004	
Mean±SD	0,86±0,03	77,72±1,94	0,0078±0,0002	3,82±0,65	0,0004±0,0001	4,42±0,58	0,0004±0,0001

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Protein2	3	.84	.90	.8633	.03215
Valid N (listwise)	3				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Seng	3	3.08	4.26	3.8233	.64702
Zat_besi	3	4.05	5.09	4.4200	.58129
Magnesium	3	75.48	78.92	77.7167	1.93887
Valid N (listwise)	3				

Lampiran 10 Dokumentasi



Pengumpulan bahan baku



Pengumpasan, penyortiran dan pembersihan biji labu



Proses perkecambahan



Perendaman pada suhu 45°C





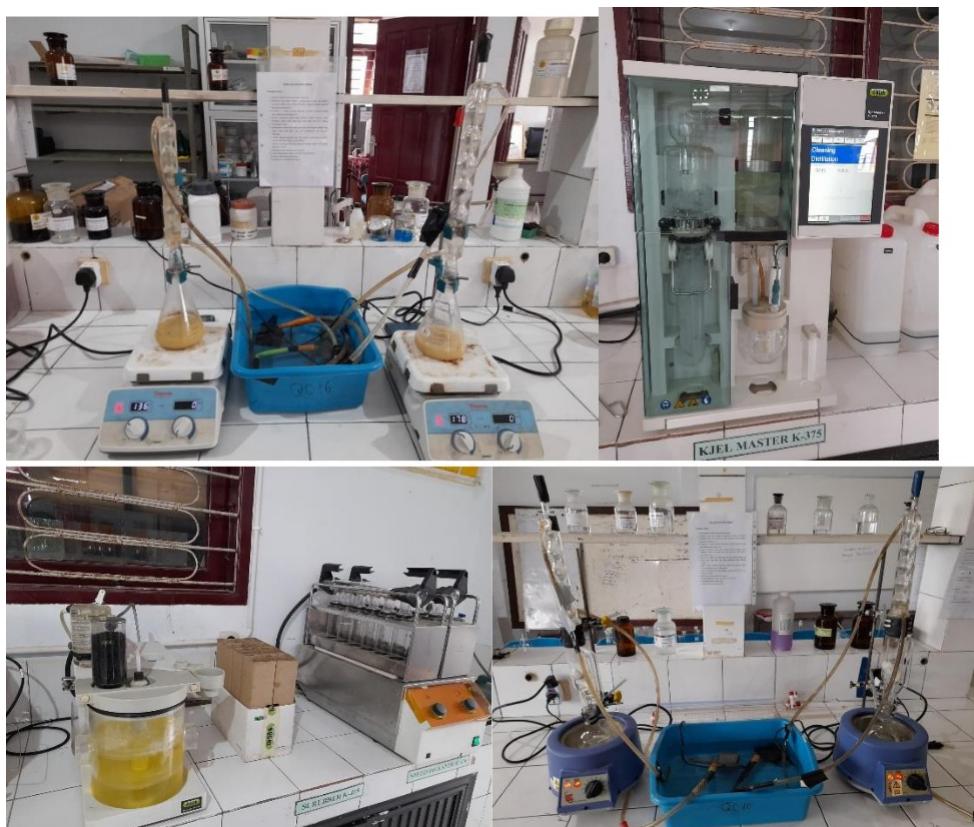
Fermentasi dengan *L. Plantarum*



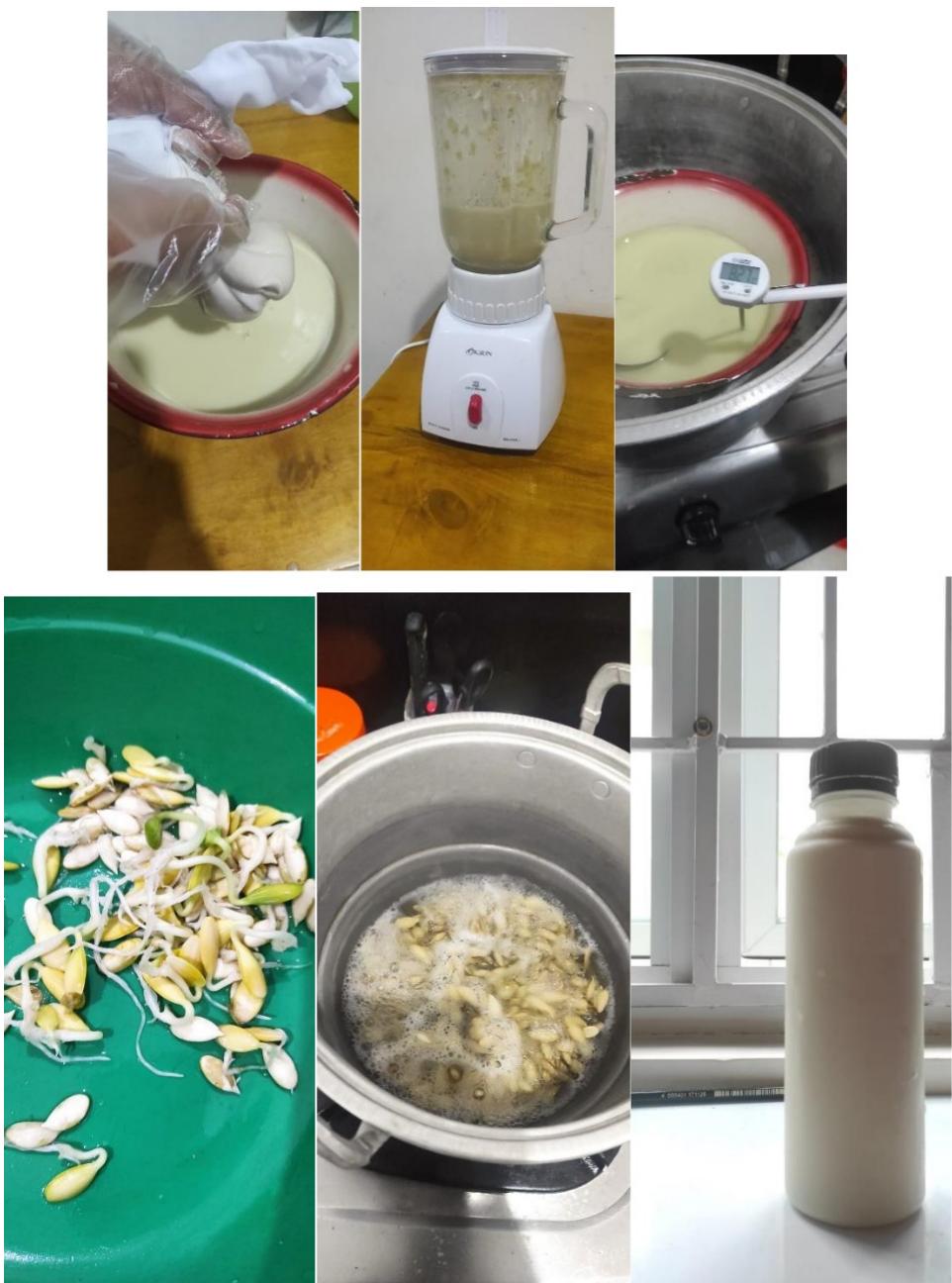
Pengeringan biji labu



Uji asam fitat



Uji proksimat



Pembuatan minuman kecambah kedelai



Uji organoleptik



analisis protein dan mineral

SEKOLAH MENENGAH KEJURUAN
SMTI MAKASSAR

Jalan Pajaiang No. 18 A Telp./Fax. (0411) 510283 Makassar 90242
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HASIL ANALISA

NAMA : Akbar Suhaji
NIM : G032191006
TEMPAT : Laboratorium Quality Control
WAKTU : 30 Juli 2021 sd 02 Agustus 2021

Analisa : Kadar Air dan Kadar Abu
Metode : Gravimetri
Sampel : Bubuk Biji Labu

Sampel	Kadar Air (%)	Kadar Abu (g)
P0	2,57	3,05
	2,50	3,01
Rerata	2,54	3,03
P1	2,99	2,61
	2,94	2,59
Rerata	2,96	2,60
P2	2,38	3,10
	2,31	3,12
Rerata	2,34	3,11
P3	3,71	2,51
	3,70	2,51
Rerata	3,70	2,51

**SEKOLAH MENENGAH KEJURUAN
SMTI MAKASSAR**

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HASIL ANALISA

Analisa : Kadar Protein
Metode : Mikro Kjedhall
Sampel : Bubuk Biji Labu

Sampel	Kadar Protein (%)	Kadar Protein (g)
P0	38,298	0,7701
	38,292	0,7697
Rerata	38,295	0,7699
P1	38,930	0,7805
	38,891	0,7798
Rerata	38,910	0,7802
P2	36,603	0,7391
	36,610	0,7392
Rerata	36,606	0,7392
P3	39,849	0,7986
	39,853	0,7986
Rerata	39,851	0,7986

Analisa : Kadar Karbohidrat
Metode : Luff Schroll
Sampel : Bubuk Biji Labu

Sampel	Kadar Karbohidrat(%)	Kadar Karbohidrat (g)
P0	14,52	0,7339
	14,48	0,7317
Rerata	14,50	0,7328
P1	13,90	0,6983
	13,86	0,6962
Rerata	13,88	0,6972
P2	13,11	0,6564
	13,07	0,6543
Rerata	13,09	0,6553
P3	13,00	0,6505
	12,94	0,6474
Rerata	12,97	0,6490

HASIL ANALISA

Analisa : Kadar Lemak
 Metode : Soxlet
 Sampel : Bubuk Biji Labu Kuning

Sampel	Kadar Lemak (%)	Kadar Lemak (g)
P0	32,27	0,6494
	31,96	0,6427
Rerata	32,12	0,6460
P1	31,84	0,6415
	31,77	0,6397
Rerata	31,80	0,6406
P2	34,71	0,6967
	34,72	0,6969
Rerata	34,72	0,6968
P3	32,08	0,6433
	32,01	0,6416
Rerata	32,04	0,6424

**SEKOLAH MENENGAH KEJURUAN
SMTI MAKASSAR**

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HASIL ANALISA

Analisa : Kadar Serat
Metode : Gravimetri
Sampel : Bubuk Biji Labu Kuning

Sampel	Kadar Serat (%)	Kadar Serat (g)
P0	8,02	0,1609
	8,05	0,1615
Rerata	8,04	0,1612
P1	7,70	0,1556
	7,68	0,1552
Rerata	7,69	0,1554
P2	7,29	0,1462
	7,33	0,1470
Rerata	7,31	0,1466
P3	6,80	0,1374
	6,77	0,1367
Rerata	6,78	0,1370





UNIVERSITAS GADJAH MADA PUSAT STUDI PANGAN DAN GIZI

Alamat : Gedung PAU-UGM, Jalan Teknika Utara, Barek, Yogyakarta 55281, Phone/Fax: (0274) 589242
<http://cns.ugm.ac.id>, E-mail : cns@ugm.ac.id

LAPORAN HASIL UJI

(Analysis Certificate)

No.PSPG/328/X/2021

Nomor Pengujian : PS/335/VIII/2021
(Analysis Report Number)
Nama Pelanggan : Akbar Suhaji
(Name of client)
Alamat dan Telpon Pelanggan :
(Address and phon of client)
Nama dan Bentuk Sampel : Padatan
Uji yang diminta : Asam Fitat
(Analysys requested)
Tanggal Penerimaan sampel : 19 Agustus 2021
Tanggal diserahkan ke lab. : 19 Agustus 2021
Metode Uji :
(Analysis Method)
Hasil Uji :
(Analysis Result)

No.	Kode sampel	Hasil Analisis	
		Asam Fitat	%
1.	P0	0,2213	
		0,2207	
2.	P1	0,1185	
		0,1191	
3.	P2	0,0727	
		0,0714	
4.	P3	0,0622	
		0,0609	

Yogyakarta 4 Oktober 2021

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LABORATORIUM KIMIA MAKANAN TERNAK
JURUSAN NUTRISI DAN MAKANAN TERNAK
FAKULTAS PETERNAKAN
UNIVERSITAS HASANUDDIN

HASIL ANALISIS BAHAN

No	Kode Sampel	Protein Kasar (%)	Mg (ppm)	Zn (ppm)	Fe (ppm)
1	Minuman	0,84	75,48	4,13	4,05
2	Minuman	0,85	78,75	4,26	5,09
3	Minuman	0,90	78,92	3,08	4,12

Ket. : Semua Fraksi Dianalisis Bredasarkan Sampel Asli (Basah)

Makassar, 13 Desember 2021
Analis,

Muhammad Syahrul

Nip. 19790603 2001 12 1 001