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LAMPIRAN

Lampiran 1. Uji Repeated Measures Anova Motilitas Spermatozoa

Within-Subjects Factors

Measure:waktu

perlakua	Dependent Variable
1	Control
2	Satu
3	Dua
4	Tiga
5	Empat

Descriptive Statistics

	perlakuan	Mean	Std. Deviation	N
kontrol	1	57.500	5.0000	4
	2	53.750	7.5000	4
	3	36.250	9.4648	4
	4	25.000	10.0000	4
	5	18.750	7.5000	4
	6	11.250	2.5000	4
	Total	33.750	18.7808	24
satu	1	57.500	5.0000	4
	2	50.000	8.1650	4
	3	41.250	17.9699	4
	4	33.750	4.7871	4
	5	28.750	10.3078	4
	6	17.500	9.5743	4
	Total	38.125	16.3396	24
dua	1	57.500	5.0000	4
	2	31.250	8.5391	4
	3	22.500	9.5743	4

	4	10.000	.0000	4
	5	5.000	4.0825	4
	6	2.500	2.8868	4
	Total	21.458	20.0802	24
Tiga	1	57.500	5.0000	4
	2	20.000	8.1650	4
	3	5.000	5.7735	4
	4	.000	.0000	4
	5	.000	.0000	4
	6	.000	.0000	4
	Total	13.750	21.6318	24
Empat	1	57.500	5.0000	4
	2	8.750	2.5000	4
	3	.000	.0000	4
	4	.000	.0000	4
	5	.000	.0000	4
	6	.000	.0000	4
	Total	11.042	21.5678	24

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.
perlakua	Pillai's Trace	.954	78.144[a]	4.000	15.000	.000
	Wilks' Lambda	.046	78.144[a]	4.000	15.000	.000
	Hotelling's Trace	20.838	78.144[a]	4.000	15.000	.000
	Roy's Largest Root	20.838	78.144[a]	4.000	15.000	.000
perlakua * perlakuan	Pillai's Trace	2.051	3.790	20.000	72.000	.000
	Wilks' Lambda	.012	7.149	20.000	50.699	.000
	Hotelling's Trace	15.462	10.437	20.000	54.000	.000
	Roy's Largest Root	11.556	41.602[b]	5.000	18.000	.000

a. Exact statistic

b. The statistic is an upper bound on F that yields a lower bound on the significance level.

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.
perlakua	Pillai's Trace	.954	78.144[a]	4.000	15.000	.000
	Wilks' Lambda	.046	78.144[a]	4.000	15.000	.000
	Hotelling's Trace	20.838	78.144[a]	4.000	15.000	.000
	Roy's Largest Root	20.838	78.144[a]	4.000	15.000	.000
perlakua * perlakuan	Pillai's Trace	2.051	3.790	20.000	72.000	.000
	Wilks' Lambda	.012	7.149	20.000	50.699	.000
	Hotelling's Trace	15.462	10.437	20.000	54.000	.000
	Roy's Largest Root	11.556	41.602[b]	5.000	18.000	.000

a. Exact statistic

c. Design: Intercept + perlakuan

Within Subjects Design: perlakua

Mauchly's Test of Sphericity[b]

Measure:waktu

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
perlakua	.040	52.932	9	.000	.581	.858	.250

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + perlakuan

Within Subjects Design: perlakua

Tests of Within-Subjects Effects

Measure:waktu

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
perlakua	Sphericity Assumed	13759.583	4	3439.896	99.567	.000
	Greenhouse-Geisser	13759.583	2.326	5915.568	99.567	.000
	Huynh-Feldt	13759.583	3.434	4006.916	99.567	.000

	Lower-bound	13759.583	1.000	13759.583	99.567	.000
perlakua * perlakuan	Sphericity Assumed	4782.917	20	239.146	6.922	.000
	Greenhouse-Geisser	4782.917	11.630	411.258	6.922	.000
	Huynh-Feldt	4782.917	17.170	278.566	6.922	.000
	Lower-bound	4782.917	5.000	956.583	6.922	.001
Error(perlakua)	Sphericity Assumed	2487.500	72	34.549		
	Greenhouse-Geisser	2487.500	41.868	59.413		
	Huynh-Feldt	2487.500	61.811	40.243		
	Lower-bound	2487.500	18.000	138.194		

Tests of Within-Subjects Contrasts

Measure:waktu

Source	perlakua	Type III Sum of Squares	df	Mean Square	F	Sig.
perlakua	Linear	11690.104	1	11690.104	256.417	.000
	Quadratic	46.503	1	46.503	1.043	.321
	Cubic	1627.604	1	1627.604	58.814	.000
	Order 4	395.372	1	395.372	19.417	.000
perlakua * perlakuan	Linear	4001.771	5	800.354	17.555	.000
	Quadratic	74.479	5	14.896	.334	.886
	Cubic	536.771	5	107.354	3.879	.015
	Order 4	169.896	5	33.979	1.669	.193
Error(perlakua)	Linear	820.625	18	45.590		
	Quadratic	802.232	18	44.568		
	Cubic	498.125	18	27.674		
	Order 4	366.518	18	20.362		

Tests of Between-Subjects Effects

Measure:waktu

Transformed Variable:Average

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Intercept	66976.875	1	66976.875	787.320	.000
perlakuan	36186.875	5	7237.375	85.076	.000
Error	1531.250	18	85.069		

1. perlakuan

Measure:waktu

Perlakuan	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	57.500	2.062	53.167	61.833
2	32.750	2.062	28.417	37.083
3	21.000	2.062	16.667	25.333
4	13.750	2.062	9.417	18.083
5	10.500	2.062	6.167	14.833
6	6.250	2.062	1.917	10.583

2. perlakua

Measure:waktu

Perlaku	Mean	Std. Error	95% Confidence Interval	
a			Lower Bound	Upper Bound
1	33.750	1.521	30.554	36.946
2	38.125	2.101	33.712	42.538
3	21.458	1.221	18.894	24.023
4	13.750	.932	11.793	15.707
5	11.042	.466	10.063	12.020

Multiple Comparisons

waktu

LSD

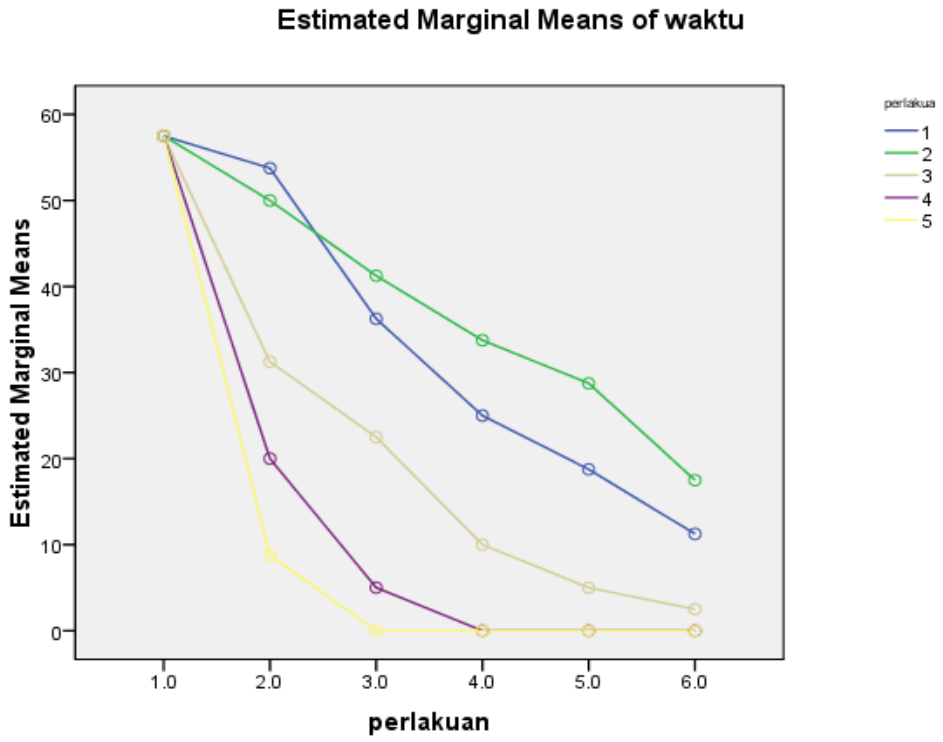
(I) perlakuan	(J) perlakuan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	24.750*	2.9167	.000	18.622	30.878
	3	36.500*	2.9167	.000	30.372	42.628
	4	43.750*	2.9167	.000	37.622	49.878
	5	47.000*	2.9167	.000	40.872	53.128
	6	51.250*	2.9167	.000	45.122	57.378
2	1	-24.750*	2.9167	.000	-30.878	-18.622
	3	11.750*	2.9167	.001	5.622	17.878
	4	19.000*	2.9167	.000	12.872	25.128
	5	22.250*	2.9167	.000	16.122	28.378
	6	26.500*	2.9167	.000	20.372	32.628
3	1	-36.500*	2.9167	.000	-42.628	-30.372
	2	-11.750*	2.9167	.001	-17.878	-5.622
	4	7.250*	2.9167	.023	1.122	13.378
	5	10.500*	2.9167	.002	4.372	16.628
	6	14.750*	2.9167	.000	8.622	20.878
4	1	-43.750*	2.9167	.000	-49.878	-37.622
	2	-19.000*	2.9167	.000	-25.128	-12.872
	3	-7.250*	2.9167	.023	-13.378	-1.122
	5	3.250	2.9167	.280	-2.878	9.378
	6	7.500*	2.9167	.019	1.372	13.628
5	1	-47.000*	2.9167	.000	-53.128	-40.872
	2	-22.250*	2.9167	.000	-28.378	-16.122
	3	-10.500*	2.9167	.002	-16.628	-4.372
	4	-3.250	2.9167	.280	-9.378	2.878
	6	4.250	2.9167	.162	-1.878	10.378
6	1	-51.250*	2.9167	.000	-57.378	-45.122
	2	-26.500*	2.9167	.000	-32.628	-20.372

3	-14.750*	2.9167	.000	-20.878	-8.622
4	-7.500*	2.9167	.019	-13.628	-1.372
5	-4.250	2.9167	.162	-10.378	1.878

Based on observed means.

The error term is Mean Square(Error) = 17.014.

*. The mean difference is significant at the .05 level.



Lampiran 2.Uji Repeated Measures Anova Motilitas Spermatozoa

Within-Subjects Factors

Measure:waktu

Perlakua	Dependent Variable
1	kontrol
2	satu
3	dua
4	tiga
5	empat

Descriptive Statistics

	perlakuan	Mean	Std. Deviation	N
Control	1	65.8525	11.21056	4
	2	61.5000	1.29099	4
	3	60.7500	1.25831	4
	4	58.9675	2.22056	4
	5	50.3375	8.86882	4
	6	45.8050	9.21278	4
	Total	57.2021	9.40919	24
Satu	1	65.8525	11.21056	4
	2	65.5550	9.41991	4
	3	64.4600	7.96561	4
	4	62.8150	9.05881	4
	5	58.2800	11.66927	4
	6	51.4875	10.93944	4
	Total	61.4083	10.36945	24
Dua	1	65.8525	11.21056	4
	2	61.2150	15.13843	4
	3	57.6725	19.60393	4
	4	46.1300	16.11377	4

	5	42.0275	20.06456	4
	6	36.6350	20.05310	4
	Total	51.5888	18.79227	24
tiga	1	65.8525	11.21056	4
	2	43.8850	8.98633	4
	3	36.7875	23.72452	4
	4	25.7775	18.27987	4
	5	11.7200	6.21862	4
	6	11.2250	6.33140	4
	Total	32.5413	23.13158	24
empat	1	65.8525	11.21056	4
	2	46.4975	9.63301	4
	3	32.9000	17.59910	4
	4	23.5125	17.05872	4
	5	16.9025	6.93040	4
	6	13.7500	6.53859	4
	Total	33.2358	21.52183	24

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.
perlakua	Pillai's Trace	.910	38.101[a]	4.000	15.000	.000
	Wilks' Lambda	.090	38.101[a]	4.000	15.000	.000
	Hotelling's Trace	10.160	38.101[a]	4.000	15.000	.000
	Roy's Largest Root	10.160	38.101[a]	4.000	15.000	.000
perlakua * perlakuan	Pillai's Trace	1.289	1.712	20.000	72.000	.051
	Wilks' Lambda	.122	2.248	20.000	50.699	.010
	Hotelling's Trace	3.970	2.680	20.000	54.000	.002
	Roy's Largest Root	2.921	10.517[b]	5.000	18.000	.000

a. Exact statistic

b. The statistic is an upper bound on F that yields a lower bound on the significance level.

c. Design: Intercept + perlakuan

Within Subjects Design: perlakua

Mauchly's Test of Sphericity[b]

Measure:waktu

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
perlakua	.125	34.187	9	.000	.658	.995	.250

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept + perlakuan

Within Subjects Design: perlakua

Tests of Within-Subjects Effects

Measure:waktu

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
perlakua	Sphericity Assumed	17545.352	4	4386.338	56.875	.000
	Greenhouse-Geisser	17545.352	2.632	6666.899	56.875	.000
	Huynh-Feldt	17545.352	3.980	4408.721	56.875	.000
	Lower-bound	17545.352	1.000	17545.352	56.875	.000
perlakua * perlakuan	Sphericity Assumed	4919.033	20	245.952	3.189	.000
	Greenhouse-Geisser	4919.033	13.159	373.828	3.189	.002
	Huynh-Feldt	4919.033	19.898	247.207	3.189	.000
	Lower-bound	4919.033	5.000	983.807	3.189	.031
Error(perlakua)	Sphericity Assumed	5552.824	72	77.123		
	Greenhouse-Geisser	5552.824	47.371	117.220		
	Huynh-Feldt	5552.824	71.634	77.516		
	Lower-bound	5552.824	18.000	308.490		

Tests of Within-Subjects Contrasts

Measure:waktu

Source	perlakua	Type III Sum of Squares	df	Mean Square	F	Sig.
perlakua	Linear	14155.622	1	14155.622	128.665	.000
	Quadratic	452.748	1	452.748	4.533	.047
	Cubic	2736.653	1	2736.653	152.159	.000
	Order 4	200.328	1	200.328	2.485	.132
perlakua * perlakuan	Linear	3857.948	5	771.590	7.013	.001
	Quadratic	127.395	5	25.479	.255	.932
	Cubic	848.200	5	169.640	9.432	.000
	Order 4	85.491	5	17.098	.212	.953
Error(perlakua)	Linear	1980.347	18	110.019		
	Quadratic	1797.696	18	99.872		
	Cubic	323.739	18	17.985		
	Order 4	1451.043	18	80.613		

Tests of Between-Subjects Effects

Measure:waktu

Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	267286.995	1	267286.995	542.178	.000
perlakuan	16246.111	5	3249.222	6.591	.001
Error	8873.770	18	492.987		

1. perlakuan

Measure:waktu

Perlakuan	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	65.852	4.965	55.422	76.283
2	55.731	4.965	45.300	66.161
3	50.514	4.965	40.083	60.945

4	43.441	4.965	33.010	53.871
5	35.854	4.965	25.423	46.284
6	31.781	4.965	21.350	42.211

2. perlakua

Measure:waktu

perlakua	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	57.202	1.437	54.183	60.221
2	61.408	2.068	57.064	65.753
3	51.589	3.539	44.154	59.024
4	32.541	2.865	26.522	38.561
5	33.236	2.514	27.954	38.517

Multiple Comparisons

waktu

LSD

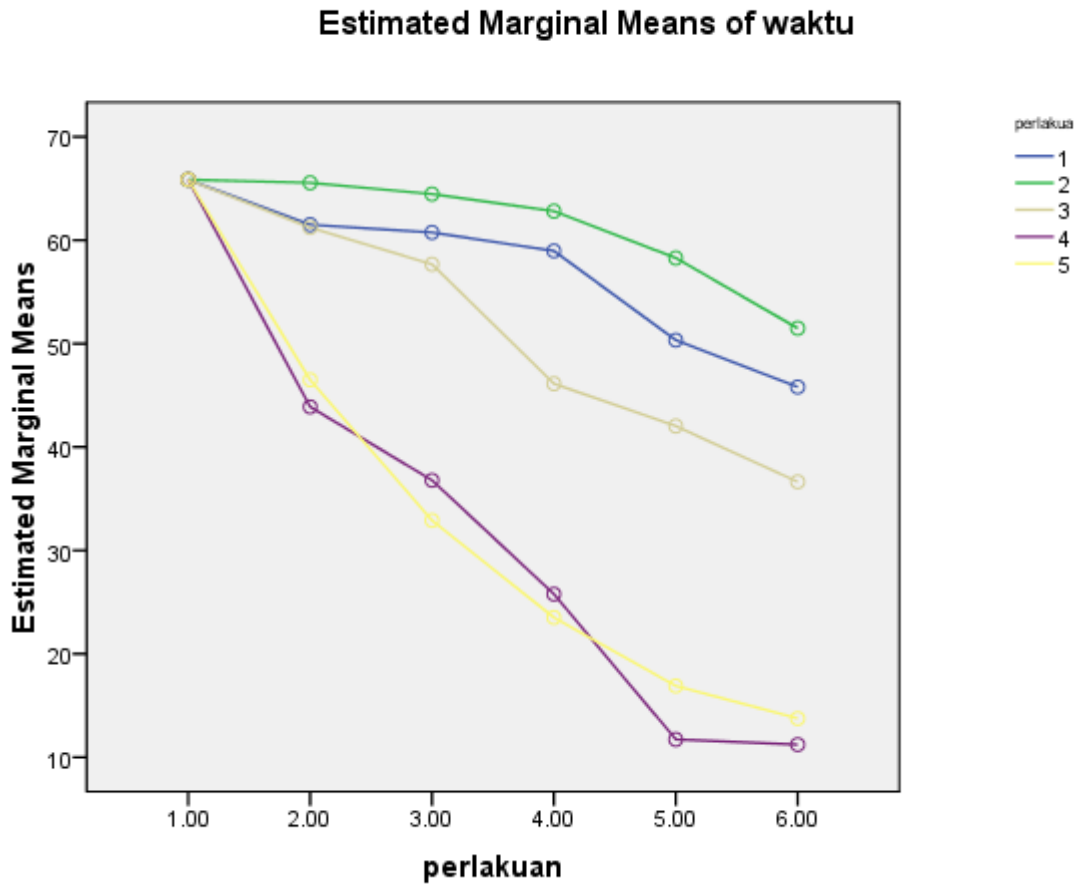
(I) perlakuan	(J) perlakuan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	10.1220	7.02130	.167	-4.6292	24.8732
	3	15.3385*	7.02130	.042	.5873	30.0897
	4	22.4120*	7.02130	.005	7.6608	37.1632
	5	29.9990*	7.02130	.000	15.2478	44.7502
	6	34.0720*	7.02130	.000	19.3208	48.8232
2	1	-10.1220	7.02130	.167	-24.8732	4.6292
	3	5.2165	7.02130	.467	-9.5347	19.9677
	4	12.2900	7.02130	.097	-2.4612	27.0412
	5	19.8770*	7.02130	.011	5.1258	34.6282
	6	23.9500*	7.02130	.003	9.1988	38.7012
3	1	-15.3385*	7.02130	.042	-30.0897	-.5873
	2	-5.2165	7.02130	.467	-19.9677	9.5347

	4	7.0735	7.02130	.327	-7.6777	21.8247
	5	14.6605	7.02130	.051	-.0907	29.4117
	6	18.7335*	7.02130	.016	3.9823	33.4847
4	1	-22.4120*	7.02130	.005	-37.1632	-7.6608
	2	-12.2900	7.02130	.097	-27.0412	2.4612
	3	-7.0735	7.02130	.327	-21.8247	7.6777
	5	7.5870	7.02130	.294	-7.1642	22.3382
	6	11.6600	7.02130	.114	-3.0912	26.4112
5	1	-29.9990*	7.02130	.000	-44.7502	-15.2478
	2	-19.8770*	7.02130	.011	-34.6282	-5.1258
	3	-14.6605	7.02130	.051	-29.4117	.0907
	4	-7.5870	7.02130	.294	-22.3382	7.1642
	6	4.0730	7.02130	.569	-10.6782	18.8242
6	1	-34.0720*	7.02130	.000	-48.8232	-19.3208
	2	-23.9500*	7.02130	.003	-38.7012	-9.1988
	3	-18.7335*	7.02130	.016	-33.4847	-3.9823
	4	-11.6600	7.02130	.114	-26.4112	3.0912
	5	-4.0730	7.02130	.569	-18.8242	10.6782

Based on observed means.

The error term is Mean Square(Error) = 98.597.

*. The mean difference is significant at the .05 level.


Estimated Marginal Means of waktu
Estimated Marginal Means
70
60
50
40
30
20
10
1.00
2.00
3.00
4.00
5.00
6.00
perlakuan
perlakua
1
2
3
4
5

DOKUMENTASI

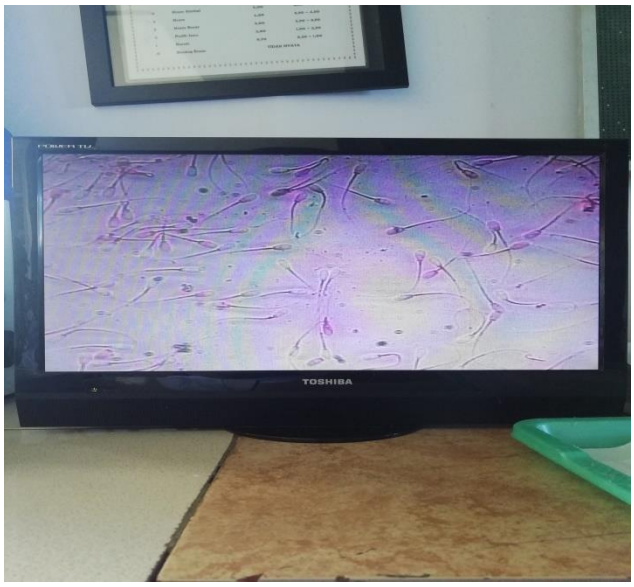
Gambar 1. Proses penampungan semen segar

Gambar 2. Proses pengenceran

Gambar 3. Proses *filling and sealing*

Gambar 4. Proses pengamatan motilitas spermatozoa

Gambar 5. Proses pengamatan viabilitas spermatozoa



BIODATA

Andrianus Tombilangi lahir pada tanggal 18 Januari tahun 1998 di Dadeko adalah anak pertama dari dua orang bersaudara dari pasangan Bapak Sondok Ma'dika dan Ibu Maria yang bekerja sebagai petani dan ibu rumah tangga. Penulis memiliki seorang adik bernama Yunike Tuala yang sekarang duduk di bangku Sekolah Menengah Pertama.

Pendidikan formal yang telah ditempuh oleh penulis adalah TK Sanguyun Ta'bu Messawa kemudian melanjutkan ke sekolah dasar di SDN 006 Paladan Sepang Kecamatan Messawa Kabupaten Mamasa. penulis kemudian melanjutkan pendidikan ke sekolah menengah pertama di SMP Katholik Messawa Kabupaten Mamasa lulus pada tahun 2013, setelah itu penulis kemudian melanjutkan pendidikan ke tingkat menengah atas di SMA Khatolik Messawa Kabupaten Mamasa lulus pada tahun 2016. Setelah lulus SMA penulis kemudian diterima sebagai mahasiswa Strata satu Fakultas Peternakan Universitas Hasanuddin Makassar melalui jalur nonsubsidi.

Penulis aktif sebagai anggota dalam organisasi internl dan eksternal kampus. Penulis adalah anggota organisasi HIMAPROTEK UH (Himpunan Mahasiswa Produksi Ternak) sampai sekarang dan anggota UKM Pencak Silat Universitas Hasanuddin. Adapun Organisasi eksternal yang diikuti oleh penulis adalah Organisasi Daerah KPM (Keluarga Pelajar Messawa) dan aktif sebagai pengurus KBMK FAPETRIK UH (Keluarga Besar Mahasiswa Kristen Fakultas Peternakan dan Jurusan Perikanan Universitas Hasanuddin).