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Lampiran Lampiran 1 Analisis Data Variabel Penelitian

Variabel	Kelompok Sterilisasi n=12	p	Kelompok Kontrol n=12	p
^b Jenis Kelamin		-		
- Jantan	6 ekor (50%)		6 ekor (50%)	-
- Betina	6 ekor (50%)		6 ekor (50%)	-
^a BB rata-rata (g) Awal	234,72 ± 9,212	0,000	225,31 ± 9,580	0,000
^a BB rata-rata (g) Akhir	308,38 ± 17,847		292,12 ± 7,8208	
^a PB rata-rata (cm) Awal	20,03 ± 0,302	0,000	19,62 ± 0,471	0,008
^a PB rata-rata (cm) Akhir	23,65 ± 0,672		22,550 ± 0,630	
^a IMT Awal	0,58 ± 0,027	0,114	0,58 ± 0,030	0,001
^a IMT Akhir	0,55 ± 0,049		0,57 ± 0,041	

n : Jumlah Sampel

^a=Parameter untuk data numerik (Mean±SD)

p : Uji Paired t test

^b=Parameter untuk data kategorik (n %)

Lampiran 2 Hasil Pemeriksaan Kadar Calcium Darah

No.	Kode Sampel	Jenis kelompok	Jenis Kelamin	Kadar Kalsium (mg/dl)
1	P01 1	Kontrol	Betina	9,19
2	P01 2	Kontrol	Betina	8,27
3	P01 3	Kontrol	Betina	9,43
4	P01 4	Kontrol	Betina	12,11
5	P01 5	Kontrol	Betina	9,42
6	P01 6	Kontrol	Betina	8,59
7	P1 1	Perlakuan	Betina	9,85
8	P1 2	Perlakuan	Betina	7,36
9	P1 3	Perlakuan	Betina	7,87
10	P1 4	Perlakuan	Betina	9,04
11	P1 5	Perlakuan	Betina	9,64
12	P1 6	Perlakuan	Betina	5,91
13	P02 1	Kontrol	Jantan	10,42
14	P02 2	Kontrol	Jantan	8,76
15	P02 3	Kontrol	Jantan	9,27
16	P02 4	Kontrol	Jantan	9,85
17	P02 5	Kontrol	Jantan	10,52
18	P02 6	Kontrol	Jantan	8,57
19	P2 1	Perlakuan	Jantan	8,68
20	P2 3	Perlakuan	Jantan	8,81
21	P2 2	Perlakuan	Jantan	13,73
22	P2 4	Perlakuan	Jantan	8,91
23	P2 5	Perlakuan	Jantan	8,41
24	P2 6	Perlakuan	Jantan	5,45

Lampiran 3 Analisis data kadar calcium betina

Descriptives

perlakuan			Statistic	Std. Error	
hasil	sham	Mean	9.7067	.57022	
		95% Confidence Interval for Mean	Lower Bound	8.2409	
			Upper Bound	11.1725	
		5% Trimmed Mean	9.6530		
		Median	9.4250		
		Variance	1.951		
		Std. Deviation	1.39675		
		Minimum	8.27		
		Maximum	12.11		
		Range	3.84		
		Interquartile Range	2.33		
		Skewness	1.084	.845	
		Kurtosis	1.005	1.741	
		perlakuan	perlakuan	Mean	8.2783
95% Confidence Interval for Mean	Lower Bound			6.6852	
	Upper Bound			9.8715	
5% Trimmed Mean	8.3226				
Median	8.4550				
Variance	2.305				
Std. Deviation	1.51812				
Minimum	5.91				
Maximum	9.85				
Range	3.94				
Interquartile Range	2.70				
Skewness	-.624			.845	
Kurtosis	-.705			1.741	

Tests of Normality

perlakuan		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
hasil	sham	.245	6	.200*	.913	6	.454
	perlakuan	.192	6	.200*	.932	6	.593

a. Lilliefors Significance Correction

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

Group Statistics

perlakuan	N	Mean	Std. Deviation	Std. Error Mean
hasil sham	6	9.5017	1.36092	.55559
perlakuan	6	8.2783	1.51812	.61977

Independent Samples Test

		Levene's Test for Equality of Variances		t Test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
hasil	Equal variances assumed	.551	.475	1.470	10	.172	1.22333	.83235	-.63125	3.07791
	Equal variances not assumed			1.470	9.883	.173	1.22333	.83235	-.63423	3.08090

Lampiran 4 Analisis data kadar calcium jantan

Descriptives

perlakuan			Statistic	Std. Error	
hasil	sham	Mean	9.5650	.33908	
		95% Confidence Interval for Mean	Lower Bound		8.6934
			Upper Bound		10.4366
		5% Trimmed Mean	9.5672		
		Median	9.5600		
		Variance	.690		
		Std. Deviation	.83058		
		Minimum	8.57		
		Maximum	10.52		
		Range	1.95		
		Interquartile Range	1.73		
		Skewness	-.007		.845
		Kurtosis	-2.160		1.741
		perlakuan	perlakuan		Mean
95% Confidence Interval for Mean	Lower Bound			6.2032	
	Upper Bound			11.7935	
5% Trimmed Mean	8.9326				
Median	8.7450				
Variance	7.094				
Std. Deviation	2.66346				
Minimum	5.45				
Maximum	13.73				
Range	8.28				
Interquartile Range	2.45				
Skewness	.969			.845	
Kurtosis	2.929			1.741	

Tests of Normality

perlakuan	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
hasil sham	.182	6	.200*	.909	6	.431
perlakuan	.347	6	.023	.845	6	.144

a. Lilliefors Significance Correction

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

Group Statistics

perlakuan	N	Mean	Std. Deviation	Std. Error Mean
hasil sham	6	9.5650	.83058	.33908
perlakuan	6	8.9983	2.66346	1.08735

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
hasil	Equal variances assumed	1.100	.319	.498	10	.630	.56667	1.13900	-1.97118	3.10451
	Equal variances not assumed			.498	5.963	.637	.56667	1.13900	-2.22452	3.35785

Lampiran 5 Hasil Pemeriksaan Jumlah Sel Osteosit

No.	Kode Sampel	Jenis kelompok	Jenis Kelamin	Sel Osteosit
1	P01 1	Kontrol	Betina	36
2	P01 2	Kontrol	Betina	35
3	P01 3	Kontrol	Betina	27
4	P01 4	Kontrol	Betina	26
5	P01 5	Kontrol	Betina	32
6	P01 6	Kontrol	Betina	25
7	P1 1	Perlakuan	Betina	24
8	P1 2	Perlakuan	Betina	19
9	P1 3	Perlakuan	Betina	22
10	P1 4	Perlakuan	Betina	28
11	P1 5	Perlakuan	Betina	27
12	P1 6	Perlakuan	Betina	23
13	P02 1	Kontrol	Jantan	31
14	P02 2	Kontrol	Jantan	25
15	P02 3	Kontrol	Jantan	24
16	P02 4	Kontrol	Jantan	37
17	P02 5	Kontrol	Jantan	26
18	P02 6	Kontrol	Jantan	38
19	P2 1	Perlakuan	Jantan	19
20	P2 3	Perlakuan	Jantan	24
21	P2 2	Perlakuan	Jantan	26
22	P2 4	Perlakuan	Jantan	23
23	P2 5	Perlakuan	Jantan	29
24	P2 6	Perlakuan	Jantan	25

Lampiran 6 Analisis Data Sel Osteosit Pada Kelompok Betina

Descriptives

perlakuan			Statistic	Std. Error	
hasil	kontrol	Mean	30.17	1.956	
		95% Confidence Interval for Mean	Lower Bound	25.14	
			Upper Bound	35.20	
		5% Trimmed Mean	30.13		
		Median	29.50		
		Variance	22.967		
		Std. Deviation	4.792		
		Minimum	25		
		Maximum	36		
		Range	11		
		Interquartile Range	10		
		Skewness	.206	.845	
		Kurtosis	-2.495	1.741	
		perlakuan	perlakuan	Mean	23.83
95% Confidence Interval for Mean	Lower Bound			20.36	
	Upper Bound			27.31	
5% Trimmed Mean	23.87				
Median	23.50				
Variance	10.967				
Std. Deviation	3.312				
Minimum	19				
Maximum	28				
Range	9				
Interquartile Range	6				
Skewness	-.128			.845	
Kurtosis	-.665			1.741	

Tests of Normality

perlakuan		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
hasil	kontrol	.246	6	.200*	.878	6	.259
	perlakuan	.164	6	.200*	.966	6	.866

a. Lilliefors Significance Correction

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

Group Statistics

perlakuan	N	Mean	Std. Deviation	Std. Error Mean
hasil kontrol	6	30.17	4.792	1.956
perlakuan	6	23.83	3.312	1.352

Independent Samples Test											
		Levene's Test for Equality of Variances		t-Test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
hasil	Equal variances assumed	2.976	.115	2.663	10	.024	6.333	2.378	1.035	11.632	
	Equal variances not assumed			2.663	8.888	.026	6.333	2.378	.943	11.723	

Lampiran 7 Analisis data sel osteosit pada kelompok jantan

Descriptives

perlakuan			Statistic	Std. Error	
hasil	kontrol	Mean	30.17	2.522	
		95% Confidence Interval for Mean	Lower Bound	23.68	
			Upper Bound	36.65	
		5% Trimmed Mean	30.07		
		Median	28.50		
		Variance	38.167		
		Std. Deviation	6.178		
		Minimum	24		
		Maximum	38		
		Range	14		
		Interquartile Range	12		
		Skewness	.452	.845	
		Kurtosis	-2.211	1.741	
		perlakuan	perlakuan	Mean	24.33
95% Confidence Interval for Mean	Lower Bound			20.84	
	Upper Bound			27.82	
5% Trimmed Mean	24.37				
Median	24.50				
Variance	11.067				
Std. Deviation	3.327				
Minimum	19				
Maximum	29				
Range	10				
Interquartile Range	5				
Skewness	-.388			.845	
Kurtosis	1.149			1.741	

Tests of Normality

perlakuan	Statistic	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		df	Sig.	Statistic	df	Sig.	
hasil kontrol	.250	6	.200*	.860	6	.189	
perlakuan	.178	6	.200*	.979	6	.946	

a. Lilliefors Significance Correction

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

Group Statistics

perlakuan	N	Mean	Std. Deviation	Std. Error Mean
hasil kontrol	6	30.17	6.178	2.522
perlakuan	6	24.33	3.327	1.358

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
hasil	Equal variances assumed	4.516	.060	2.036	10	.069	5.833	2.865	-.549	12.216
	Equal variances not assumed			2.036	7.675	.078	5.833	2.865	-.821	12.488

Lampiran 8 Hasil Perhitungan Jumlah Sel Osteoklast dan Osteoblast

No.	Kode Sampel	Jenis kelompok	Jenis Kelamin	Sel Osteoklast	Sel Osteoblast
1	P01 1	Kontrol	Betina	1	20
2	P01 2	Kontrol	Betina	2	17
3	P01 3	Kontrol	Betina	2	16
4	P01 4	Kontrol	Betina	2	18
5	P01 5	Kontrol	Betina	2	17
6	P01 6	Kontrol	Betina	3	15
7	P1 1	Perlakuan	Betina	5	14
8	P1 2	Perlakuan	Betina	4	17
9	P1 3	Perlakuan	Betina	3	16
10	P1 4	Perlakuan	Betina	3	15
11	P1 5	Perlakuan	Betina	4	14
12	P1 6	Perlakuan	Betina	4	15
13	P02 1	Kontrol	Jantan	2	17
14	P02 2	Kontrol	Jantan	2	16
15	P02 3	Kontrol	Jantan	2	17
16	P02 4	Kontrol	Jantan	3	16
17	P02 5	Kontrol	Jantan	3	17
18	P02 6	Kontrol	Jantan	2	18
19	P2 1	Perlakuan	Jantan	4	17
20	P2 3	Perlakuan	Jantan	3	15
21	P2 2	Perlakuan	Jantan	3	15
22	P2 4	Perlakuan	Jantan	2	16
23	P2 5	Perlakuan	Jantan	4	18
24	P2 6	Perlakuan	Jantan	3	16

Lampiran 9 Analisis data sel osteoklast betina

Descriptives

perlakuan			Statistic	Std. Error	
hasil	kontrol	Mean	2.83	.167	
		95% Confidence Interval for Mean	Lower Bound	2.40	
			Upper Bound	3.26	
		5% Trimmed Mean	2.87		
		Median	3.00		
		Variance	.167		
		Std. Deviation	.408		
		Minimum	2		
		Maximum	3		
		Range	1		
		Interquartile Range	0		
		Skewness	-2.449	.845	
		Kurtosis	6.000	1.741	
		perlakuan	perlakuan	Mean	3.83
95% Confidence Interval for Mean	Lower Bound			3.04	
	Upper Bound			4.62	
5% Trimmed Mean	3.81				
Median	4.00				
Variance	.567				
Std. Deviation	.753				
Minimum	3				
Maximum	5				
Range	2				
Interquartile Range	1				
Skewness	.313			.845	
Kurtosis	-.104			1.741	

Group Statistics

perlakuan		N	Mean	Std. Deviation	Std. Error Mean
hasil	kontrol	6	2.67	.516	.211
	perlakuan	6	3.67	.516	.211

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
hasil	Equal variances assumed	.000	1.000	-3.354	10	.007	-1.000	.298	-1.664	-.336
	Equal variances not assumed			-3.354	10.000	.007	-1.000	.298	-1.664	-.336

Lampiran 10 Analisis data sel osteoklast jantan

Descriptives

perlakuan			Statistic	Std. Error	
hasil	kontrol	Mean	2.33	.211	
		95% Confidence Interval for Mean	Lower Bound	1.79	
			Upper Bound	2.88	
		5% Trimmed Mean	2.31		
		Median	2.00		
		Variance	.267		
		Std. Deviation	.516		
		Minimum	2		
		Maximum	3		
		Range	1		
		Interquartile Range	1		
		Skewness	.968	.845	
		Kurtosis	-1.875	1.741	
		perlakuan	perlakuan	Mean	3.17
95% Confidence Interval for Mean	Lower Bound			2.38	
	Upper Bound			3.96	
5% Trimmed Mean	3.19				
Median	3.00				
Variance	.567				
Std. Deviation	.753				
Minimum	2				
Maximum	4				
Range	2				
Interquartile Range	1				
Skewness	-.313			.845	
Kurtosis	-.104			1.741	

Group Statistics

perlakuan		N	Mean	Std. Deviation	Std. Error Mean
hasil	kontrol	6	2.33	.516	.211
	perlakuan	6	3.17	.753	.307

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
hasil	Equal variances assumed	.328	.580	-2.236	10	.049	-.833	.373	-1.664	-.003
	Equal variances not assumed			-2.236	8.953	.053	-.833	.373	-1.679	.012

Lampiran 11 Analisis data sel osteoblast betina

Descriptives

perlakuan			Statistic	Std. Error	
hasil	kontrol	Mean	17.17	.703	
		95% Confidence Interval for Mean	Lower Bound	15.36	
			Upper Bound	18.97	
		5% Trimmed Mean	17.13		
		Median	17.00		
		Variance	2.967		
		Std. Deviation	1.722		
		Minimum	15		
		Maximum	20		
		Range	5		
		Interquartile Range	3		
		Skewness	.678	.845	
		Kurtosis	.814	1.741	
		perlakuan	perlakuan	Mean	15.17
95% Confidence Interval for Mean	Lower Bound			13.94	
	Upper Bound			16.39	
5% Trimmed Mean	15.13				
Median	15.00				
Variance	1.367				
Std. Deviation	1.169				
Minimum	14				
Maximum	17				
Range	3				
Interquartile Range	2				
Skewness	.668			.845	
Kurtosis	-.446			1.741	

Group Statistics

perlakuan		N	Mean	Std. Deviation	Std. Error Mean
hasil	kontrol	6	17.17	1.722	.703
	perlakuan	6	15.17	1.169	.477

independent samples test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
hasil	Equal variances assumed	.419	.532	2.353	10	.040	2.000	.850	.106	3.894
	Equal variances not assumed			2.353	8.800	.044	2.000	.850	.071	3.929

Lampiran 12 Analisis data sel osteoblast jantan

Descriptives

perlakuan			Statistic	Std. Error	
hasil	kontrol	Mean	16.83	.307	
		95% Confidence Interval for Mean	Lower Bound	16.04	
			Upper Bound	17.62	
		5% Trimmed Mean	16.81		
		Median	17.00		
		Variance	.567		
		Std. Deviation	.753		
		Minimum	16		
		Maximum	18		
		Range	2		
		Interquartile Range	1		
		Skewness	.313	.845	
		Kurtosis	-.104	1.741	
		perlakuan	perlakuan	Mean	16.17
95% Confidence Interval for Mean	Lower Bound			14.94	
	Upper Bound			17.39	
5% Trimmed Mean	16.13				
Median	16.00				
Variance	1.367				
Std. Deviation	1.169				
Minimum	15				
Maximum	18				
Range	3				
Interquartile Range	2				
Skewness	.668			.845	
Kurtosis	-.446			1.741	

Group Statistics

perlakuan		N	Mean	Std. Deviation	Std. Error Mean
hasil	kontrol	6	16.83	.753	.307
	perlakuan	6	16.17	1.169	.477

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
hasil	Equal variances assumed	1.084	.322	1.174	10	.267	.667	.568	-598	1.931
	Equal variances not assumed			1.174	8.538	.272	.667	.568	-628	1.961

Lampiran 13 Persetujuan Etik



KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS HASANUDDIN FAKULTAS KEDOKTERAN
KOMITE ETIK PENELITIAN KESEHATAN
RSPTN UNIVERSITAS HASANUDDIN
RSUP Dr. WAHIDIN SUDIROHUSODO MAKASSAR
Sekretariat : Lantai 2 Gedung Laboratorium Terpadu
JL.PERINTIS KEMERDEKAAN KAMPUS TAMALANREA KM.10 MAKASSAR 90245.
Contact Person: dr. Agusssalim Bukhari, M.Med,PHD, SpGK TELP. 081241850858, 0411 5780103, Fax : 0411-581431



REKOMENDASI PERSETUJUAN ETIK
Nomor : 80/UN4.6.4.5.31/ PP36/ 2021

Tanggal: 11 Februari 2021

Dengan ini Menyatakan bahwa Protokol dan Dokumen yang Berhubungan Dengan Protokol berikut ini telah mendapatkan Persetujuan Etik :

No Protokol	UH21010055	No Sponsor Protokol	
Peneliti Utama	drh. Dian Fatmawati	Sponsor	
Judul Peneliti	Pengaruh tindakan sterilisasi terhadap remodelling tulang dan kadar calcium darah		
No Versi Protokol	1	Tanggal Versi	28 Januari 2021
No Versi PSP		Tanggal Versi	
Tempat Penelitian	Klinik Hewan Pendidikan Universitas Hasanuddin Makassar		
Jenis Review	<input checked="" type="checkbox"/> Exempted <input type="checkbox"/> Expedited <input type="checkbox"/> Fullboard Tanggal	Masa Berlaku 11 Februari 2021 sampai 11 Februari 2022	Frekuensi review lanjutan
Ketua Komisi Etik Penelitian Kesehatan FKUH	Nama Prof.Dr.dr. Suryani As'ad, M.Sc.,Sp.GK (K)	Tanda tangan	
Sekretaris Komisi Etik Penelitian Kesehatan FKUH	Nama dr. Agusssalim Bukhari, M.Med.,Ph.D.,Sp.GK (K)	Tanda tangan	

Kewajiban Peneliti Utama:

- Menyerahkan Amandemen Protokol untuk persetujuan sebelum di implementasikan
- Menyerahkan Laporan SAE ke Komisi Etik dalam 24 jam dan dilengkapi dalam 7 hari dan Lapoe SUSAR dalam 72 jam setelah Peneliti Utama menerima laporan
- Menyerahkan Laporan Kemajuan (progress report) setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah
- Menyerahkan laporan akhir setelah Penelitian berakhir
- Melaporkan penyimpangan dari prokol yang disetujui (protocol deviation / violation)
- Mematuhi semua peraturan yang ditentukan

Lampiran 14 Dokumentasi Kegiatan Penelitian



Persiapan kandang tikus



Aklimatisasi tikus



Persiapan alat dan bahan operasi



Persiapan Ruang Operasi



Injeksi Anestesi



Pencukuran



Bedah Ovariohisterectomy



Bedah Orchiectomy



Perawatan tikus pasca operasi



Pemberian pakan dan minum

Lampiran 15 Pemeriksaan kadar calcium darah



Pengambilan darah



Pengambilan darah



Sentrifuge 5-10 Menit



Persiapan serum darah



Proses pengujian kadar calcium darah

Lampiran 16 Pembuatan preparat histologi tulang



Euthanasia



Pengambilan sampel femur



Perendaman tulang di cairan HCL



Fiksasi



Dehidrasi



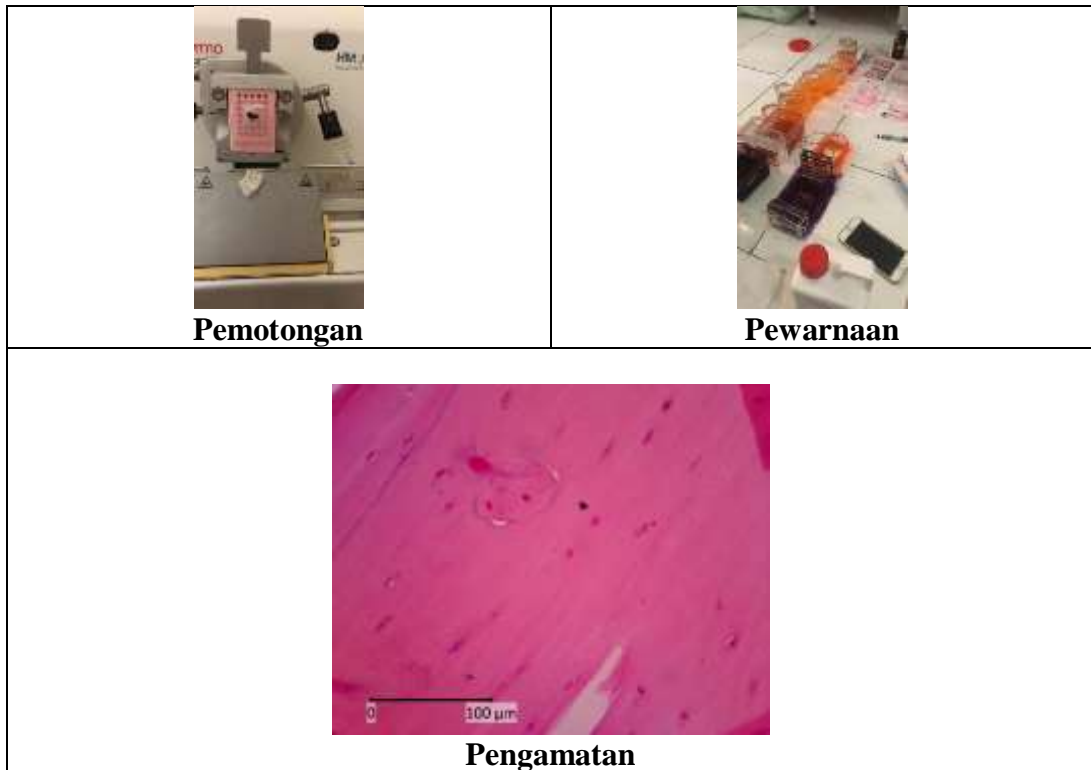
Clearing



Infiltrasi



Embedding



Pakan standar AD II



Dengan komposisi pakan yaitu air : maksimal 12%, protein kasar : minimal 15%, lemak kasar : 3-7 %,serat kasar : maksimal 6%,abu : maksimal 7%,kalsium : 0,9-1,1% dan phosphor : 0,6-0,9%.

