

LAMPIRAN A
PERHITUNGAN PERSENTASE HASIL SINTESIS SENYAWA O-(4-BROMOBENZOIL) PIROKSIKAM

Reaksi :

	Piroksikam	+	4-bromobenzoil klorida	→	O-(4-bromobenzoil) piroksikam
Mula :	0,010mol		0,017 mol		
Bereaksi :	0,010mol		0,010 mol		0,010mol
Sisa :	-		0,007 mol		0,010mol

Perhitungan berat teoritis senyawa O-(4-bromobenzoil)piroksikam :

$$\begin{aligned}
 \text{BM O-(4-bromobenzoil)piroksikam} &= 514,35 \\
 \text{Berat O-(4-bromobenzoil)piroksikam} &= 0,010 \text{ mol} \times \text{BM senyawa} \\
 &= 0,010\text{mol} \times 514,35 \\
 &= 5,1435 \text{ gram}
 \end{aligned}$$

Berat senyawa hasil sintesis yang diperoleh = 2,5546 gram

Perhitungan persentase hasil :

$$\begin{aligned}
 \% \text{ hasil} &= \frac{\text{berat senyawa hasil sintesis}}{\text{berat senyawa secara teoritis}} \times 100\% \\
 &= \frac{2,5546}{5,1435} \times 100 \% \\
 &= 49,7 \%
 \end{aligned}$$

LAMPIRAN B
PERHITUNGAN BERAT

$$\begin{aligned}\text{Piroksikam} &= \text{mol} \times \text{BM} \\ &= 0,010 \text{ mol} \times 331,35 \\ &= 3,3135 \text{ gram}\end{aligned}$$

$$\begin{aligned}\text{4-bromobenzoil klorida} &= \text{mol} \times \text{BM} \\ &= 0,017 \text{ mmol} \times 219,5 \\ &= 3,73 \text{ gram}\end{aligned}$$

$$\begin{aligned}\text{Piridin} &= \text{mol} \times \text{BM} \\ &= 0,025 \text{ mol} \times 79,10 \\ &= 1,9775 \text{ gram}\end{aligned}$$

$$\begin{aligned}\text{Volume piridin} &= \frac{\text{berat}}{\rho} \\ &= \frac{1,9775}{0,9827} \\ &= 2,0123 \text{ ml} \approx 2 \text{ ml}\end{aligned}$$

LAMPIRAN C

PERHITUNGAN % HAMBATAN NYERI SENYAWA UJI O-(4-BROMOBENZOIL)PIROKSIKAM DAN SENYAWA PEMBANDING PIROKSIKAM

Rumus : $\% \text{ hambatan nyeri} = \frac{f_K - f_T}{f_K} \times 100 \%$

f_T = frekuensi geliat rata-rata pada kelompok uji atau kelompok pembanding

f_K = frekuensi geliat rata-rata pada kelompok kontrol

<u>Piroksikam</u>	<u>O-(4-bromobenzoil)piroksikam</u>
Dosis 1 mg/kg BB % hambatan nyeri = $\frac{90,2 - 70,4}{90,2} \times 100 \% = 21,95 \%$	Dosis 1 mg/kg BB % hambatan nyeri = $\frac{90,2 - 69}{90,2} \times 100 \% = 23,50 \%$
Dosis 2 mg/kg BB % hambatan nyeri = $\frac{90,2 - 59,2}{90,2} \times 100 \% = 34,37 \%$	Dosis 2 mg/kg BB % hambatan nyeri = $\frac{90,2 - 57,6}{90,2} \times 100 \% = 36,14 \%$
Dosis 3 mg/kg BB % hambatan nyeri = $\frac{90,2 - 50,6}{90,2} \times 100 \% = 43,90 \%$	Dosis 3 mg/kg BB % hambatan nyeri = $\frac{90,2 - 47,4}{90,2} \times 100 \% = 47,45 \%$
Dosis 4 mg/kg BB % hambatan nyeri = $\frac{90,2 - 39,8}{90,2} \times 100 \% = 55,89 \%$	Dosis 4 mg/kg BB % hambatan nyeri = $\frac{90,2 - 37,6}{90,2} \times 100 \% = 58,31 \%$
Dosis 5 mg/kg BB % hambatan nyeri = $\frac{90,2 - 30}{90,2} \times 100 \% = 66,74 \%$	Dosis 5 mg/kg BB % hambatan nyeri = $\frac{90,2 - 27,4}{90,2} \times 100 \% = 69,62 \%$

LAMPIRAN D
HASIL UJI HSD ANTARA KELOMPOK SENYAWA UJI O-(4-BROMOBENZOIL)PIROKSIKAM, SENYAWA PEMBANDING PIROKSIKAM DAN KONTROL CMC-Na 0,5 %

Post Hoc Tests

Multiple Comparisons

Dependent Variable: GELIAT
 Tukey HSD

(I)Dosis	(J)Dosis	Mean		Sig.	95% Confidence Interval	
		Difference (I-J)	Std. Error		Lower Bound	Upper Bound
1	2	11.20000*	3.22716	.041	.2503	22.1497
	3	19.80000*	3.22716	.000	8.8503	30.7497
	4	30.60000*	3.22716	.000	19.6503	41.5497
	5	40.40000*	3.22716	.000	29.4503	51.3497
	6	1.40000	3.22716	1.000	-9.5497	12.3497
	7	12.80000*	3.22716	.011	1.8503	23.7497
	8	23.00000*	3.22716	.000	12.0503	33.9497
	9	32.80000*	3.22716	.000	21.8503	43.7497
	10	43.00000*	3.22716	.000	32.0503	53.9497
	11	-19.80000*	3.22716	.000	-30.7497	-8.8503
2	1	-11.20000*	3.22716	.041	-22.1497	-.2503
	3	8.60000*	3.22716	.249	-2.3497	19.5497
	4	19.40000*	3.22716	.000	8.4503	30.3497
	5	29.20000*	3.22716	.000	18.2503	40.1497

	6	-9.80000*	3.22716	.116	-20.7497	1.1497
	7	1.60000	3.22716	1.000	-9.3497	12.5497
	8	11.80000*	3.22716	.025	.8503	22.7497
	9	21.60000*	3.22716	.000	10.6503	32.5497
	10	31.80000*	3.22716	.000	20.8503	42.7497
	11	-31.00000*	3.22716	.000	-41.9497	-20.0503
3	1	-19.80000*	3.22716	.000	-30.7497	-8.8503
	2	-8.60000*	3.22716	.249	-19.5497	2.3497
	4	10.80000*	3.22716	.056	-.1497	21.7497
	5	20.60000*	3.22716	.000	9.6503	31.5497
	6	-18.40000*	3.22716	.000	-29.3497	-7.4503
	7	-7.00000*	3.22716	.537	-17.9497	3.9497
	8	3.20000	3.22716	.995	-7.7497	14.1497
	9	13.00000*	3.22716	.009	2.0503	23.9497
	10	23.20000*	3.22716	.000	12.2503	34.1497
	11	-39.60000*	3.22716	.000	-50.5497	-28.6503
4	1	-30.60000*	3.22716	.000	-41.5497	-19.6503
	2	-19.40000*	3.22716	.000	-30.3497	-8.4503
	3	-10.80000*	3.22716	.056	-21.7497	.1497
	5	9.80000*	3.22716	.116	-1.1497	20.7497
	6	-29.20000*	3.22716	.000	-40.1497	-18.2503
	7	-17.80000*	3.22716	.000	-28.7497	-6.8503
	8	-7.60000*	3.22716	.417	-18.5497	3.3497
	9	2.20000	3.22716	1.000	-8.7497	13.1497
	10	12.40000*	3.22716	.015	1.4503	23.3497

	11	-50.40000*	3.22716	.000	-61.3497	-39.4503
5	1	-40.40000*	3.22716	.000	-51.3497	-29.4503
	2	-29.20000*	3.22716	.000	-40.1497	-18.2503
	3	-20.60000*	3.22716	.000	-31.5497	-9.6503
	4	-9.80000*	3.22716	.116	-20.7497	1.1497
	6	-39.00000*	3.22716	.000	-49.9497	-28.0503
	7	-27.60000*	3.22716	.000	-38.5497	-16.6503
	8	-17.40000*	3.22716	.000	-28.3497	-6.4503
	9	-7.60000*	3.22716	.417	-18.5497	3.3497
	10	2.60000	3.22716	.999	-8.3497	13.5497
	11	-60.20000*	3.22716	.000	-71.1497	-49.2503
6	1	-1.40000	3.22716	1.000	-12.3497	9.5497
	2	9.80000*	3.22716	.116	-1.1497	20.7497
	3	18.40000*	3.22716	.000	7.4503	29.3497
	4	29.20000*	3.22716	.000	18.2503	40.1497
	5	39.00000*	3.22716	.000	28.0503	49.9497
	7	11.40000*	3.22716	.035	.4503	22.3497
	8	21.60000*	3.22716	.000	10.6503	32.5497
	9	31.40000*	3.22716	.000	20.4503	42.3497
	10	41.60000*	3.22716	.000	30.6503	52.5497
	11	-21.20000*	3.22716	.000	-32.1497	-10.2503
7	1	-12.80000*	3.22716	.011	-23.7497	-1.8503
	2	-1.60000	3.22716	1.000	-12.5497	9.3497
	3	7.00000*	3.22716	.537	-3.9497	17.9497
	4	17.80000*	3.22716	.000	6.8503	28.7497

	5	27.60000*	3.22716	.000	16.6503	38.5497
	6	-11.40000*	3.22716	.035	-22.3497	-.4503
	8	10.20000*	3.22716	.088	-.7497	21.1497
	9	20.00000*	3.22716	.000	9.0503	30.9497
	10	30.20000*	3.22716	.000	19.2503	41.1497
	11	-32.60000*	3.22716	.000	-43.5497	-21.6503
8	1	-23.00000*	3.22716	.000	-33.9497	-12.0503
	2	-11.80000*	3.22716	.025	-22.7497	-.8503
	3	-3.20000	3.22716	.995	-14.1497	7.7497
	4	7.60000*	3.22716	.417	-3.3497	18.5497
	5	17.40000*	3.22716	.000	6.4503	28.3497
	6	-21.60000*	3.22716	.000	-32.5497	-10.6503
	7	-10.20000*	3.22716	.088	-21.1497	.7497
	9	9.80000*	3.22716	.116	-1.1497	20.7497
	10	20.00000*	3.22716	.000	9.0503	30.9497
	11	-42.80000*	3.22716	.000	-53.7497	-31.8503
9	1	-32.80000*	3.22716	.000	-43.7497	-21.8503
	2	-21.60000*	3.22716	.000	-32.5497	-10.6503
	3	-13.00000*	3.22716	.009	-23.9497	-2.0503
	4	-2.20000	3.22716	1.000	-13.1497	8.7497
	5	7.60000*	3.22716	.417	-3.3497	18.5497
	6	-31.40000*	3.22716	.000	-42.3497	-20.4503
	7	-20.00000*	3.22716	.000	-30.9497	-9.0503
	8	-9.80000*	3.22716	.116	-20.7497	1.1497

	10	10.20000*	3.22716	.088	-.7497	21.1497
	11	-52.60000*	3.22716	.000	-63.5497	-41.6503
10	1	-43.00000*	3.22716	.000	-53.9497	-32.0503
	2	-31.80000*	3.22716	.000	-42.7497	-20.8503
	3	-23.20000*	3.22716	.000	-34.1497	-12.2503
	4	-12.40000*	3.22716	.015	-23.3497	-1.4503
	5	-2.60000	3.22716	.999	-13.5497	8.3497
	6	-41.60000*	3.22716	.000	-52.5497	-30.6503
	7	-30.20000*	3.22716	.000	-41.1497	-19.2503
	8	-20.00000*	3.22716	.000	-30.9497	-9.0503
	9	-10.20000*	3.22716	.088	-21.1497	.7497
	11	-62.80000*	3.22716	.000	-73.7497	-51.8503
	1	19.80000*	3.22716	.000	8.8503	30.7497
11	2	31.00000*	3.22716	.000	20.0503	41.9497
	3	39.60000*	3.22716	.000	28.6503	50.5497
	4	50.40000*	3.22716	.000	39.4503	61.3497
	5	60.20000*	3.22716	.000	49.2503	71.1497
	6	21.20000*	3.22716	.000	10.2503	32.1497
	7	32.60000*	3.22716	.000	21.6503	43.5497
	8	42.80000*	3.22716	.000	31.8503	53.7497
	9	52.60000*	3.22716	.000	41.6503	63.5497
	10	62.80000*	3.22716	.000	51.8503	73.7497

*. The mean difference is significant at the 0.05 level.

LAMPIRAN E
HASIL UJI ED₅₀ SENYAWA PIROKSIKAM

* * * * * P R O B I T A N A L Y S I S * * * * *

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Cell Counts and Residuals

	Num ber	Dosis	Number of Subjects	Observed Responses	Expected Responses	Residual	Probabi lity
PROBIT	1	1.000	100	22	22.974	-1.024	.230
	2	2.000	100	34	32.842	1.528	.328
	3	3.000	100	44	44.084	-.184	.441
	4	4.000	100	56	55.828	.062	.558
	5	5.000	100	67	67.077	-.337	.671

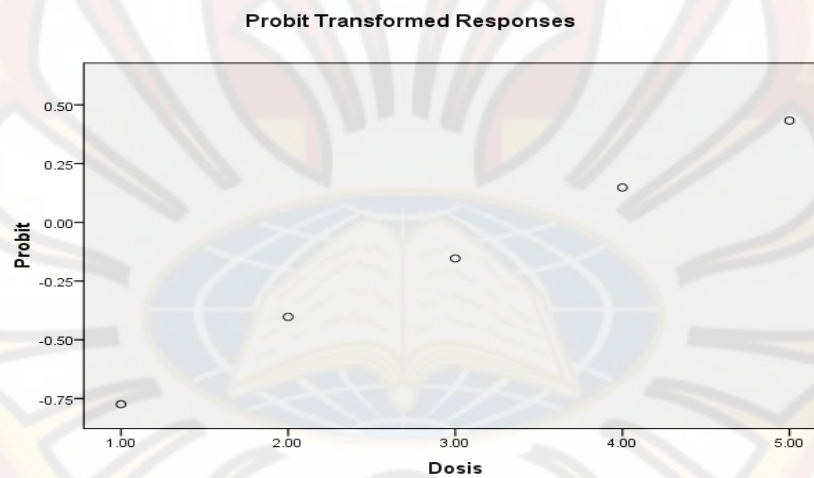
Confidence Limits

		95% Confidence Limits for Dosis		
	Probability	Estimate	Lower Bound	Upper Bound
PROBIT	0.01	-4.370	-7.281	-2.714
	0.02	-3.448	-6.007	-1.987
	0.03	-2.862	-5.199	-1.526
	0.04	-2.422	-4.592	-1.178

0.05 -2.064 -4.098

0.06	-1.759	-3.678	-.653
0.07	-1.491	-3.311	-.441
0.08	-1.252	-2.982	-.251
0.09	-1.034	-2.683	-.077
0.1	-.834	-2.408	.082
0.15	-.004	-1.274	.748
0.2	.655	-.380	1.283
0.25	1.221	.379	1.752
0.3	1.729	1.047	2.185
0.35	2.200	1.648	2.605
0.4	2.646	2.191	3.031
0.45	3.078	2.679	3.481
0.5	3.504	3.118	3.963
0.55	3.929	3.523	4.481
0.6	4.361	3.910	5.032
0.65	4.808	4.292	5.618
0.7	5.279	4.685	6.246
0.75	5.787	5.100	6.933
0.8	6.352	5.557	7.702
0.85	7.012	6.085	8.605

0.9	7.841	6.745	9.744
0.91	8.042	6.904	10.020
0.92	8.260	7.076	10.320
0.93	8.499	7.265	10.650
0.94	8.766	7.477	11.018
0.95	9.071	7.717	11.439
0.96	9.429	8.000	11.933
0.97	9.870	8.347	12.541
0.98	10.455	8.807	13.350
0.99	11.378	9.533	14.626



LAMPIRAN F
HASIL UJI ED₅₀ SENYAWA O-(4-BROMOBENZOIL)PIROKSIKAM

* * * * * P R O B I T A N A L Y S I S * * * * *

* * *

Cell Counts and Residuals

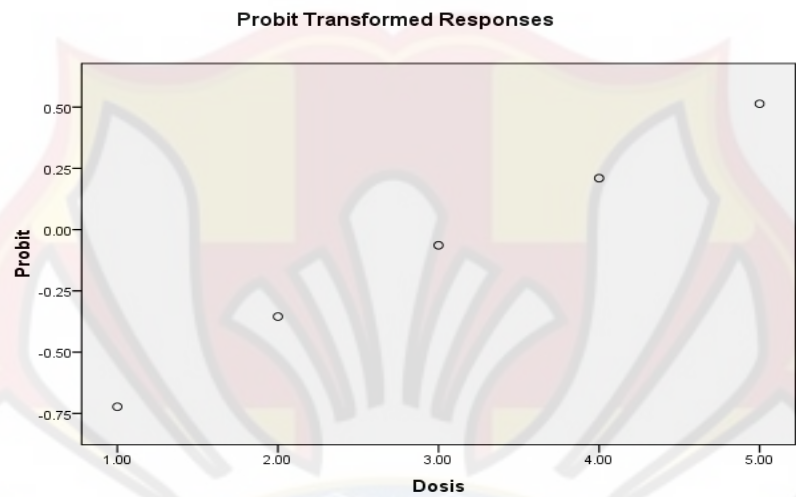
	Num ber	Dosis	Number of Subjects	Observed Responses	Expected Responses	Residual	Probabi lity
PROBIT	1	1.000	100	24	24.568	-1.068	.246
	2	2.000	100	36	35.001	1.139	.350
	3	3.000	100	47	46.713	.737	.467
	4	4.000	100	58	58.720	-.410	.587
	5	5.000	100	70	69.957	-.337	.700

Confidence Limits

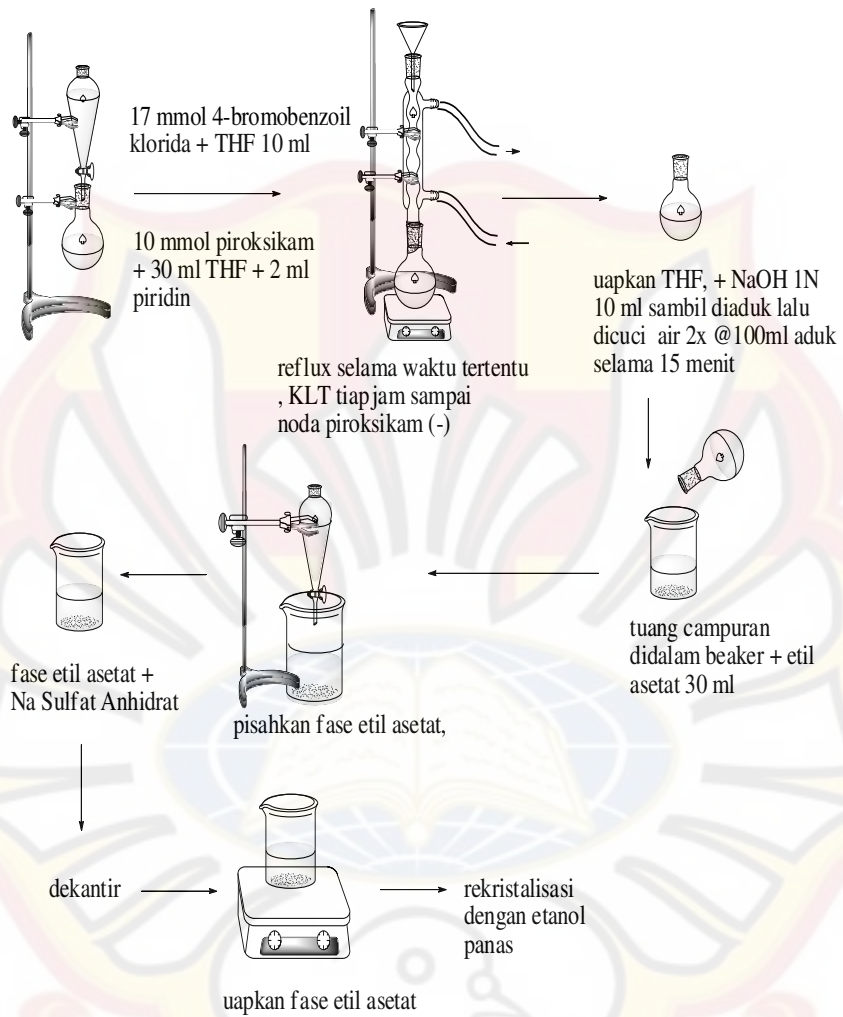
95% Confidence Limits for Dosis				
	Probability	Estimate	Lower Bound	Upper Bound
PROBIT	0.01	-4.410		-2.783
	0.02	-3.510	-5.995	-2.070
	0.03	-2.938	-5.214	-1.618
	0.04	-2.509	-4.627	-1.277
	0.05	-2.159	-4.150	-.999
	0.06	-1.862	-3.745	-.762
	0.07	-1.601	-3.389	-.554

0.08	-1.367	-3.071	-.368
0.09	-1.155	-2.782	-.198
0.1	-.960	-2.516	-.042
0.15	-.150	-1.419	.609
0.2	.493	-.553	1.133
0.25	1.045	.182	1.589
0.3	1.541	.833	2.009
0.35	2.000	1.422	2.412
0.4	2.436	1.960	2.816
0.45	2.857	2.449	3.237
0.5	3.272	2.895	3.687
0.55	3.687	3.305	4.174
0.6	4.109	3.693	4.696
0.65	4.545	4.075	5.255
0.7	5.004	4.464	5.858
0.75	5.500	4.875	6.518
0.8	6.052	5.325	7.260
0.85	6.695	5.844	8.130
0.9	7.504	6.492	9.230
0.91	7.700	6.648	9.497
0.92	7.912	6.817	9.786
0.93	8.146	7.003	10.105
0.94	8.407	7.211	10.461
0.95	8.704	7.447	10.867
0.96	9.054	7.724	11.344

0.97	9.483	8.065	11.932
0.98	10.054	8.517	12.713
0.99	10.954	9.229	13.946



LAMPIRAN G
SKEMA SINTESIS O-(4-BROMOBENZOIL)PIROKSIKAM



LAMPIRAN H
SERTIFIKAT PIROKSIKAM

南通精华制药股份有限公司检验报告
NANTONG JINGHUA PHARMACEUTICAL CO. LTD.
CERTIFICATE OF ANALYSIS
APIs ADD: 43 Yaogang Road, Nantong Jiangsu China
Tel: 86-513-85609405/85609406

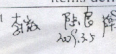
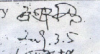
17/7 '09 PD 1159 = 25 kg

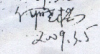
吡 罗 昔 康
PIROXICAM **MICRONIZED**

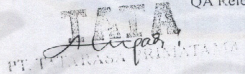
Batch No.	PRX2009005M	Manufacture Date	2009.3.4
Total Quantity	200.0KG	Report Date	2009.3.5
Commercial Quantity	200.0KG	Re-test Date	2012.3.3
Inspection No.	09030020		

TEST	SPECIFICATIONS (USP)	RESULTS
Characteristics	off-white to light tan or light yellow odorless powder	Complies
Identification	A. IR B. UV C. TLC	Complies
Water	≤ 0.5%	0.32%
Residue on ignition	≤ 0.3%	0.14%
Heavy metals	≤ 0.005%	< 0.005%
Organic volatile impurities	complies	Complies
Residual solvents	Ethanol ≤ 0.5%	< 0.5%
Particle size	100% ≤ 1000 mesh	Complies
Assay	97.0~103.0%	99.46%

Conclusion: The product meets the requirements of USP 31 and the additional items defined by customer

Analyst:  Supervisor:  Chief of Laboratory: 

QA Release Date:  2009.3.5


PT. PIRAXIA PHARMACEUTICAL

LAMPIRAN I
SERTIFIKAT MENCIT (*MUS MUSCULUS*)

CV. SURABAYA MOUSE SERVICE
WEDORO MASJID NO. 20-E RT. 01 RW.05 WEDORO
KECAMATAN WARU SIDOARJO
TELP. 081938310682 – 03170259110

Yang bertanda tangan di bawah ini:

Nama : M. Syamsul Bahri, S.Kom

Selaku penanggung jawab Pengembangan Hewan Percobaan

Menerangkan bahwa yang digunakan pada penelitian:

Judul : Sintesis O-(4-Bromo Benzoil) Piroksikam dan Uji Aktivitas Analgesik terhadap Mencit (*Mus Musculus*).
Peneliti : Poppy Listya Yenni
Institusi : Fakultas Farmasi Universitas Katolik Widya Mandala Surabaya
NRP : 2443006079

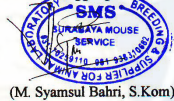
Merupakan hewan uji dengan spesifikasi:

Mencit galur : Swiss Webster
Umur : 2 – 3 bulan
Jenis kelamin : Jantan
Jumlah : 55 ekor

Demikian surat keterangan ini dibuat untuk dapat digunakan sebaik-baiknya.

Sidoarjo, 30 Maret 2010

Penanggung Jawab


(M. Syamsul Bahri, S.Kom)