

LAMPIRAN A.

PERHITUNGAN PERSENTASE HASIL SINTESIS

Reaksi:

Piroksikam + 4-*tersier*-butilbenzoil klorida → senyawa hasil sintesis

M :	0,010 mol	0,015 mol	-
B :	0,010 mol	0,010 mol	0,010 mol
S :		0,005 mol	0,010 mol

BM senyawa hasil sintesis = 133.92

Berat teoritis senyawa hasil sintesis = 0,010 mol × 133.92
= 1.3392 gram

Hasil yang didapat = 1.1520 gram

$$\begin{aligned}\text{Jadi, persentase hasil} &= \frac{\text{Berat senyawa hasil sintesis}}{\text{Berat senyawa secara teoritis}} \times 100\% \\ &= \frac{1.1520}{1.3392} \times 100\% \\ &= 86.02\%\end{aligned}$$

LAMPIRAN B.
PERHITUNGAN BERAT

$$\begin{aligned} \text{Piroksikam} &= \text{mol} \times \text{BM} \\ &= 0,010 \text{ mol} \times 331,35 \\ &= 3,314 \text{ gram} \end{aligned}$$

$$\begin{aligned} \text{4-*tersier*-butilbenzoil klorida} &= \text{mol} \times \text{BM} \\ &= 0,015 \text{ mol} \times 196,5 \\ &= 2,9475 \text{ gram} \end{aligned}$$

$$\begin{aligned} \text{Volume 4-*tersier*-butilbenzoil klorida} &= \frac{\text{berat}}{\rho} \\ &= \frac{2,9475}{1,007} \\ &= 2,927 \approx 3 \text{ ml} \end{aligned}$$

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

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

LAMPIRAN C.

**PERHITUNGAN % HAMBATAN NYERI SENYAWA UJI O-(4-
TERSIER-BUTILBENZOIL)PIROKSIKAM DAN SENYAWA
PEMBANDING PIROKSIKAM**

Piroksikam	O-(4- <i>tersier</i> -butilbenzoil)piroksikam
Dosis 1 mg/kg BB	Dosis 1 mg/kg BB
% hambatan nyeri =	% hambatan nyeri =
$\frac{90.6 - 71.2}{90.6} \times 100\% = 21.42\%$	$\frac{90.6 - 69}{90.6} \times 100\% = 23.84\%$
Dosis 2 mg/kg BB	Dosis 2 mg/kg BB
% hambatan nyeri =	% hambatan nyeri =
$\frac{90.6 - 58}{90.6} \times 100\% = 35.98\%$	$\frac{90.6 - 58.4}{90.6} \times 100\% = 35.54\%$
Dosis 3 mg/kg BB	Dosis 3 mg/kg BB
% hambatan nyeri =	% hambatan nyeri =
$\frac{90.6 - 49}{90.6} \times 100\% = 45.92\%$	$\frac{90.6 - 47.6}{90.6} \times 100\% = 47.46\%$
Dosis 4 mg/kg BB	Dosis 4 mg/kg BB
% hambatan nyeri =	% hambatan nyeri =
$\frac{90.6 - 40.6}{90.6} \times 100\% = 55.19\%$	$\frac{90.6 - 40.2}{90.6} \times 100\% = 55.63\%$
Dosis 5 mg/kg BB	Dosis 5 mg/kg BB
% hambatan nyeri =	% hambatan nyeri =
$\frac{90.6 - 40.6}{90.6} \times 100\% = 55.19\%$	$\frac{90.6 - 40.2}{90.6} \times 100\% = 55.63\%$

LAMPIRAN D.
**HASIL UJI HSD ANTARA KELOMPOK SENYAWA UJI O-(4-
 TERSIER-BUTILBENZOIL)PIROKSIKAM, SENYAWA
 PEMBANDING PIROKSIKAM, DAN KONTROL CMC-NA 0,5%**

Dependent Variable: GELIAT
 Tukey HSD

(I) dosis	(J) dosis	Mean Differenc e (I-J)	Std. Error	Sig.	95% Confidence Interval		
					Upper Bound	Lower Bound	
kontrol	do 1	21.600(*)	3.413	.000	10.02	33.18	
	do 2	32.200(*)	3.413	.000	20.62	43.78	
	do 3	43.000(*)	3.413	.000	31.42	54.58	
	do 4	50.400(*)	3.413	.000	38.82	61.98	
	do 5	62.200(*)	3.413	.000	50.62	73.78	
	p 1	19.400(*)	3.413	.000	7.82	30.98	
	p 2	32.600(*)	3.413	.000	21.02	44.18	
	p 3	41.600(*)	3.413	.000	30.02	53.18	
	p 4	50.000(*)	3.413	.000	38.42	61.58	
	p 5	62.600(*)	3.413	.000	51.02	74.18	
	do 1	kontrol	-	3.413	.000	-33.18	-10.02
		do 2	10.600	3.413	.100	-.98	22.18
		do 3	21.400(*)	3.413	.000	9.82	32.98
		do 4	28.800(*)	3.413	.000	17.22	40.38
		do 5	40.600(*)	3.413	.000	29.02	52.18
p 1		-2.200	3.413	1.000	-13.78	9.38	
p 2		11.000	3.413	.076	-.58	22.58	
p 3		20.000(*)	3.413	.000	8.42	31.58	
p 4		28.400(*)	3.413	.000	16.82	39.98	
p 5		41.000(*)	3.413	.000	29.42	52.58	
do 2		kontrol	-	3.413	.000	-43.78	-20.62
		do 1	-10.600	3.413	.100	-22.18	.98
		do 3	10.800	3.413	.087	-.78	22.38
		do 4	18.200(*)	3.413	.000	6.62	29.78
		do 5	30.000(*)	3.413	.000	18.42	41.58
	p 1	-	3.413	.020	-24.38	-1.22	

		12.800(*)				
	p 2	.400	3.413	1.000	-11.18	11.98
	p 3	9.400	3.413	.210	-2.18	20.98
	p 4	17.800(*)	3.413	.000	6.22	29.38
	p 5	30.400(*)	3.413	.000	18.82	41.98
do 3	kontrol	-	3.413	.000	-54.58	-31.42
		43.000(*)				
	do 1	-	3.413	.000	-32.98	-9.82
		21.400(*)				
	do 2	-10.800	3.413	.087	-22.38	.78
	do 4	7.400	3.413	.538	-4.18	18.98
	do 5	19.200(*)	3.413	.000	7.62	30.78
	p 1	-	3.413	.000	-35.18	-12.02
		23.600(*)				
	p 2	-10.400	3.413	.114	-21.98	1.18
	p 3	-1.400	3.413	1.000	-12.98	10.18
	p 4	7.000	3.413	.616	-4.58	18.58
	p 5	19.600(*)	3.413	.000	8.02	31.18
do 4	kontrol	-	3.413	.000	-61.98	-38.82
		50.400(*)				
	do 1	-	3.413	.000	-40.38	-17.22
		28.800(*)				
	do 2	-	3.413	.000	-29.78	-6.62
		18.200(*)				
	do 3	-7.400	3.413	.538	-18.98	4.18
	do 5	11.800(*)	3.413	.043	.22	23.38
	p 1	-	3.413	.000	-42.58	-19.42
		31.000(*)				
	p 2	-	3.413	.000	-29.38	-6.22
		17.800(*)				
	p 3	-8.800	3.413	.291	-20.38	2.78
	p 4	-.400	3.413	1.000	-11.98	11.18
	p 5	12.200(*)	3.413	.031	.62	23.78
do 5	kontrol	-	3.413	.000	-73.78	-50.62
		62.200(*)				
	do 1	-	3.413	.000	-52.18	-29.02
		40.600(*)				
	do 2	-	3.413	.000	-41.58	-18.42
		30.000(*)				
	do 3	-	3.413	.000	-30.78	-7.62
		19.200(*)				

	do 4	-	3.413	.043	-23.38	-.22
		11.800(*)				
	p 1	-	3.413	.000	-54.38	-31.22
		42.800(*)				
	p 2	-	3.413	.000	-41.18	-18.02
		29.600(*)				
	p 3	-	3.413	.000	-32.18	-9.02
		20.600(*)				
	p 4	-	3.413	.031	-23.78	-.62
		12.200(*)				
	p 5	.400	3.413	1.000	-11.18	11.98
p 1	kontrol	-	3.413	.000	-30.98	-7.82
		19.400(*)				
	do 1	2.200	3.413	1.000	-9.38	13.78
	do 2	12.800(*)	3.413	.020	1.22	24.38
	do 3	23.600(*)	3.413	.000	12.02	35.18
	do 4	31.000(*)	3.413	.000	19.42	42.58
	do 5	42.800(*)	3.413	.000	31.22	54.38
	p 2	13.200(*)	3.413	.014	1.62	24.78
	p 3	22.200(*)	3.413	.000	10.62	33.78
	p 4	30.600(*)	3.413	.000	19.02	42.18
	p 5	43.200(*)	3.413	.000	31.62	54.78
p 2	kontrol	-	3.413	.000	-44.18	-21.02
		32.600(*)				
	do 1	-11.000	3.413	.076	-22.58	.58
	do 2	-.400	3.413	1.000	-11.98	11.18
	do 3	10.400	3.413	.114	-1.18	21.98
	do 4	17.800(*)	3.413	.000	6.22	29.38
	do 5	29.600(*)	3.413	.000	18.02	41.18
	p 1	-	3.413	.014	-24.78	-1.62
		13.200(*)				
	p 3	9.000	3.413	.262	-2.58	20.58
	p 4	17.400(*)	3.413	.000	5.82	28.98
	p 5	30.000(*)	3.413	.000	18.42	41.58
p 3	kontrol	-	3.413	.000	-53.18	-30.02
		41.600(*)				
	do 1	-	3.413	.000	-31.58	-8.42
		20.000(*)				
	do 2	-9.400	3.413	.210	-20.98	2.18
	do 3	1.400	3.413	1.000	-10.18	12.98
	do 4	8.800	3.413	.291	-2.78	20.38

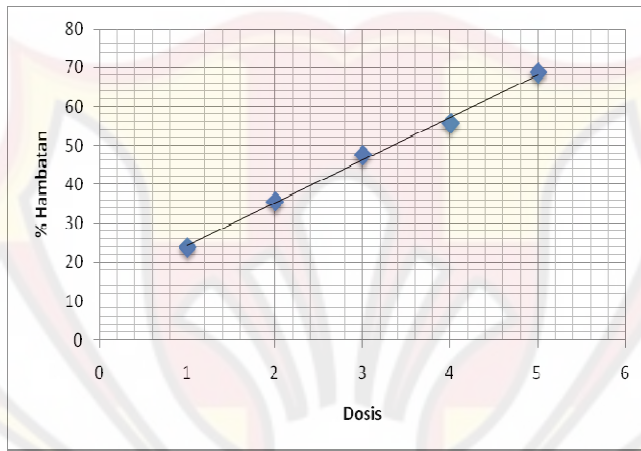
p 4	do 5	20.600(*)	3.413	.000	9.02	32.18
	p 1	-	3.413	.000	-33.78	-10.62
		22.200(*)				
	p 2	-9.000	3.413	.262	-20.58	2.58
	p 4	8.400	3.413	.354	-3.18	19.98
	p 5	21.000(*)	3.413	.000	9.42	32.58
	kontrol	-	3.413	.000	-61.58	-38.42
		50.000(*)				
	do 1	-	3.413	.000	-39.98	-16.82
		28.400(*)				
do 2	-	3.413	.000	-29.38	-6.22	
	17.800(*)					
do 3	-7.000	3.413	.616	-18.58	4.58	
do 4	.400	3.413	1.000	-11.18	11.98	
do 5	12.200(*)	3.413	.031	.62	23.78	
p 1	-	3.413	.000	-42.18	-19.02	
	30.600(*)					
p 2	-	3.413	.000	-28.98	-5.82	
	17.400(*)					
p 3	-8.400	3.413	.354	-19.98	3.18	
p 5	12.600(*)	3.413	.023	1.02	24.18	
kontrol	-	3.413	.000	-74.18	-51.02	
	62.600(*)					
do 1	-	3.413	.000	-52.58	-29.42	
	41.000(*)					
do 2	-	3.413	.000	-41.98	-18.82	
	30.400(*)					
do 3	-	3.413	.000	-31.18	-8.02	
	19.600(*)					
do 4	-	3.413	.031	-23.78	-.62	
	12.200(*)					
do 5	-.400	3.413	1.000	-11.98	11.18	
p 1	-	3.413	.000	-54.78	-31.62	
	43.200(*)					
p 2	-	3.413	.000	-41.58	-18.42	
	30.000(*)					
p 3	-	3.413	.000	-32.58	-9.42	
	21.000(*)					
p 4	-	3.413	.023	-24.18	-1.02	
	12.600(*)					

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

LAMPIRAN E.
**HASIL UJI ED₅₀ SENYAWA O-(4-TERSIER-
 BUTILBENZOIL)PIROKSIKAM DAN SENYAWA PIROKSIKAM**

Prosentase Hambatan Nyeri (selama 30 menit) $\alpha = 0,05$						
No.	Kontrol CMCNa 0.5%	Kelompok senyawa uji				
		O-(4- <i>tersier</i> -butilbenzoilbenzoil) piroksikam				
		1	2	3	4	5
1	90.6	20.53	38.19	39.29	61.37	66.89
2	90.6	27.15	32.67	55.85	50.33	71.3
3	90.6	28.26	38.19	44.81	52.54	73.51
4	90.6	19.43	24.94	41.5	58.06	64.68
5	90.6	23.84	43.71	55.85	55.85	66.89
Rata-rata	90.6	23.84	35.54	47.46	55.63	68.65
SD	4.04	3.9	7.1	7.91	4.37	3.63

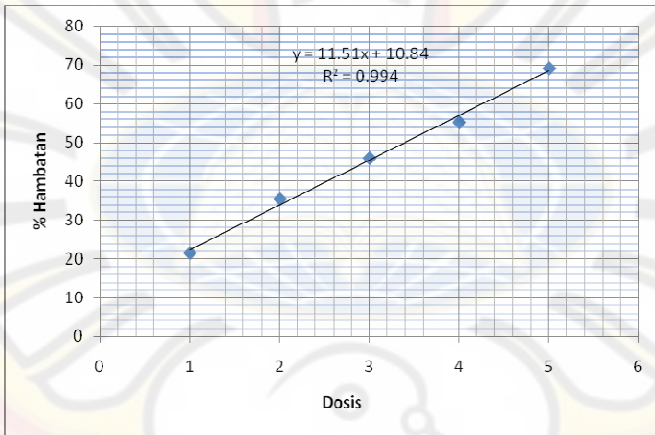
LR ED50 dosis	Seny Uji % hamb
1	23.84
2	35.54
3	47.46
4	55.63
5	68.65
ED50	3.34



Prosentase Hambatan Nyeri (selama 30 menit) $\alpha = 0,05$

No.	Kontrol CMCNa 0.5%	Kelompok senyawa pembeding				
		1	2	3	4	5
1	90.6	13.91	44.81	51.43	65.78	75.72
2	90.6	31.57	38.19	52.54	50.33	65.78
3	90.6	24.94	31.57	38.19	45.92	72.41
4	90.6	20.53	35,98	42.6	60.26	63.58
5	90.6	16.11	26.36	44.81	53.64	67.99
Rata-rata	90.6	21.41	35.38	45.91	55.19	69.1
SD	4.04	7.09	6.95	6.04	7.9	4.93

LR ED50	Seny Uji
dosis	% hamb
1	21.41
2	35.38
3	45.91
4	55.19
5	69.1
ED50	3.4



LAMPIRAN F.
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

17/3 '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 *李敏* Supervisor *陈启林* Chief of Laboratory *郭丹丹*
2009.3.5 *2009.3.5* *2009.3.5*
 QA Release Date *2009.3.5*

PT. TARA FARMA
INDONESIA

LAMPIRAN G.
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-*tersier*-Butilbenzoiil) Piroksikam dan Uji
Aktivitas Analgesik Terhadap Mencit (*Mus musculus*)

Peneliti : Aluisia Ita Davita Salim

Institusi : Fakultas Farmasi widya Mandala Surabaya

NRP : 2443006136

Merupakan hewan uji dengan spesifikasi:

Mencit galur : Swiss Webster

Umur : 2 – 3 bulan

Jenis kelamin : Jantan

Jumlah : 60 ekor

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

Sidoarjo, 20 Agustus 2010

Penanggung Jawab

(M. Syamsul Bahri, S.Kom)

LAMPIRAN H. SKEMA SINTESIS O-(4-TERSIER-BUTILBENZOIL)PIROKSIKAM

