

## Lampiran 1

### Perhitungan Berat Asam salisilat, Oktanoil klorida dan Piridin

1. Asam salisilat = mol  $\times$  BM  
= 0,025  $\times$  138,12  
= 3,45 gram

2. Oktanoil klorida = mol  $\times$  BM  
= 0,03  $\times$  162,66  
= 4,88 gram  
= gram : BJ  
= 4,88 : 1,435  
= 3,4 ml

3. Piridin = mol  $\times$  BM  
= 0,025  $\times$  79,10  
= 1,9775 gram  
= gram : BJ  
= 1,9775 : 1,4350  
= 1,3 ml

## Lampiran 2

### Perhitungan prosentase hasil sintesis senyawa asam 2-oktanoiloksibenzoat

A. Perhitungan berat senyawa asam 2-oktanoiloksibenzoat secara teoritis :

1. BM asam 2-oktanoiloksibenzoat = 263,13
2. Berat senyawa teoritis = mol  $\times$  BM  
= 0,025  $\times$  263,31  
= 6.58 gram
3. Berat senyawa hasil sintesis = 3.66 gram

B. Perhitungan prosentase hasil

$$\begin{aligned}\% \text{ hasil} &= \frac{\text{berat senyawa sintesis}}{\text{berat senyawa secara teoritis}} \times 100 \% \\ &= \frac{3.66}{6.58} \times 100 \% \\ &= 56 \%\end{aligned}$$

### Lampiran 3

#### Perhitungan prosentase hambatan nyeri senyawa uji asam 2-oktanoiloksi benzoat dan senyawa asam asetilsalisilat (asetosal)

$$\% \text{ hambatan nyeri} = \frac{f_k - f_r}{f_k} \times 100 \%$$

$f_r$  = frekuensi geliat rata-rata pada kelompok uji atau kelompok pembanding.

$f_k$  = frekuensi geliat rata-rata pada kelompok kontrol.

Contoh perhitungan :

- % Hambatan nyeri senyawa asam asetilsalisilat (asetosal) dengan dosis 12.5 mg/kg BB.

$$\begin{aligned} \% \text{ hambatan nyeri} &= \frac{38.2 - 22.8}{38.2} \times 100 \% \\ &= 40.31\% \end{aligned}$$

- % Hambatan nyeri senyawa asam 2-oktanoiloksibenzoat dengan dosis 12.5 mg/kg BB.

$$\begin{aligned} \% \text{ hambatan nyeri} &= \frac{38.2 - 26.8}{38.2} \times 100 \% \\ &= 29.84 \% \end{aligned}$$

## Lampiran 4

### Perhitungan ANOVA dan LSD frekuensi geliat kelompok senyawa uji (asam 2-oktanoiloksibenzoat), pembanding (asetosal) dan kontrol

#### ANOVA

geliat

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4008.836	10	400.884	12.875	.000
Within Groups	1370.000	44	31.136		
Total	5378.836	54			

#### Post Hoc Tests

##### Multiple Comparisons

Dependent Variable: geliat  
LSD

(I) dosis	(J) dosis	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
kontrol	hs_12.5	11.40000(*)	3.52910	.002	4.2876	18.5124
	hs_25	13.80000(*)	3.52910	.000	6.6876	20.9124
	hs_50	14.80000(*)	3.52910	.000	7.6876	21.9124
	hs_100	19.00000(*)	3.52910	.000	11.8876	26.1124
	hs_200	24.00000(*)	3.52910	.000	16.8876	31.1124
	aset_12.5	15.40000(*)	3.52910	.000	8.2876	22.5124
	aset_25	18.60000(*)	3.52910	.000	11.4876	25.7124
	aset_50	22.80000(*)	3.52910	.000	15.6876	29.9124
	aset_100	24.60000(*)	3.52910	.000	17.4876	31.7124
	aset_200	35.20000(*)	3.52910	.000	28.0876	42.3124
hs_12.5	kontrol	-11.40000(*)	3.52910	.002	-18.5124	-4.2876
	hs_25	2.40000	3.52910	.500	-4.7124	9.5124
	hs_50	3.40000	3.52910	.341	-3.7124	10.5124
	hs_100	7.60000(*)	3.52910	.037	.4876	14.7124
	hs_200	12.60000(*)	3.52910	.001	5.4876	19.7124
	aset_12.5	4.00000	3.52910	.263	-3.1124	11.1124
	aset_25	7.20000(*)	3.52910	.047	.0876	14.3124
	aset_50	11.40000(*)	3.52910	.002	4.2876	18.5124
	aset_100	13.20000(*)	3.52910	.001	6.0876	20.3124
	aset_200	23.80000(*)	3.52910	.000	16.6876	30.9124

## Lanjutan

hs_25	kontrol	-13.80000(*)	3.52910	.000	-20.9124	-6.6876
	hs_12.5	-2.40000	3.52910	.500	-9.5124	4.7124
	hs_50	1.00000	3.52910	.778	-6.1124	8.1124
	hs_100	5.20000	3.52910	.148	-1.9124	12.3124
	hs_200	10.20000(*)	3.52910	.006	3.0876	17.3124
	aset_12.5	1.60000	3.52910	.653	-5.5124	8.7124
	aset_25	4.80000	3.52910	.181	-2.3124	11.9124
	aset_50	9.00000(*)	3.52910	.014	1.8876	16.1124
	aset_100	10.80000(*)	3.52910	.004	3.6876	17.9124
	aset_200	21.40000(*)	3.52910	.000	14.2876	28.5124
hs_50	kontrol	-14.80000(*)	3.52910	.000	-21.9124	-7.6876
	hs_12.5	-3.40000	3.52910	.341	-10.5124	3.7124
	hs_25	-1.00000	3.52910	.778	-8.1124	6.1124
	hs_100	4.20000	3.52910	.240	-2.9124	11.3124
	hs_200	9.20000(*)	3.52910	.012	2.0876	16.3124
	aset_12.5	.60000	3.52910	.866	-6.5124	7.7124
	aset_25	3.80000	3.52910	.287	-3.3124	10.9124
	aset_50	8.00000(*)	3.52910	.028	.8876	15.1124
	aset_100	9.80000(*)	3.52910	.008	2.6876	16.9124
	aset_200	20.40000(*)	3.52910	.000	13.2876	27.5124
hs_100	kontrol	-19.00000(*)	3.52910	.000	-26.1124	-11.8876
	hs_12.5	-7.60000(*)	3.52910	.037	-14.7124	-.4876
	hs_25	-5.20000	3.52910	.148	-12.3124	1.9124
	hs_50	-4.20000	3.52910	.240	-11.3124	2.9124
	hs_200	5.00000	3.52910	.164	-2.1124	12.1124
	aset_12.5	-3.60000	3.52910	.313	-10.7124	3.5124
	aset_25	-.40000	3.52910	.910	-7.5124	6.7124
	aset_50	3.80000	3.52910	.287	-3.3124	10.9124
	aset_100	5.60000	3.52910	.120	-1.5124	12.7124
	aset_200	16.20000(*)	3.52910	.000	9.0876	23.3124
hs_200	kontrol	-24.00000(*)	3.52910	.000	-31.1124	-16.8876
	hs_12.5	-12.60000(*)	3.52910	.001	-19.7124	-5.4876
	hs_25	-10.20000(*)	3.52910	.006	-17.3124	-3.0876
	hs_50	-9.20000(*)	3.52910	.012	-16.3124	-2.0876
	hs_100	-5.00000	3.52910	.164	-12.1124	2.1124
	aset_12.5	-8.60000(*)	3.52910	.019	-15.7124	-1.4876
	aset_25	-5.40000	3.52910	.133	-12.5124	1.7124
	aset_50	-1.20000	3.52910	.735	-8.3124	5.9124
	aset_100	.60000	3.52910	.866	-6.5124	7.7124
	aset_200	11.20000(*)	3.52910	.003	4.0876	18.3124
aset_12.5	kontrol	-15.40000(*)	3.52910	.000	-22.5124	-8.2876
	hs_12.5	-4.00000	3.52910	.263	-11.1124	3.1124
	hs_25	-1.60000	3.52910	.653	-8.7124	5.5124
	hs_50	-.60000	3.52910	.866	-7.7124	6.5124
	hs_100	3.60000	3.52910	.313	-3.5124	10.7124
	hs_200	8.60000(*)	3.52910	.019	1.4876	15.7124
	aset_25	3.20000	3.52910	.369	-3.9124	10.3124
	aset_50	7.40000(*)	3.52910	.042	.2876	14.5124
	aset_100	9.20000(*)	3.52910	.012	2.0876	16.3124
	aset_200	19.80000(*)	3.52910	.000	12.6876	26.9124
aset_25	kontrol	-18.60000(*)	3.52910	.000	-25.7124	-11.4876
	hs_12.5	-7.20000(*)	3.52910	.047	-14.3124	-.0876
	hs_25	-4.80000	3.52910	.181	-11.9124	2.3124
	hs_50	-3.80000	3.52910	.287	-10.9124	3.3124

## Lanjutan

	hs_100	.40000	3.52910	.910	-6.7124	7.5124
	hs_200	5.40000	3.52910	.133	-1.7124	12.5124
	aset_12.5	-3.20000	3.52910	.369	-10.3124	3.9124
	aset_50	4.20000	3.52910	.240	-2.9124	11.3124
	aset_100	6.00000	3.52910	.096	-1.1124	13.1124
aset_50	aset_200	16.60000(*)	3.52910	.000	9.4876	23.7124
	kontrol	-22.80000(*)	3.52910	.000	-29.9124	-15.6876
	hs_12.5	-11.40000(*)	3.52910	.002	-18.5124	-4.2876
	hs_25	-9.00000(*)	3.52910	.014	-16.1124	-1.8876
	hs_50	-8.00000(*)	3.52910	.028	-15.1124	-.8876
	hs_100	-3.80000	3.52910	.287	-10.9124	3.3124
	hs_200	1.20000	3.52910	.735	-5.9124	8.3124
	aset_12.5	-7.40000(*)	3.52910	.042	-14.5124	-.2876
	aset_25	-4.20000	3.52910	.240	-11.3124	2.9124
	aset_100	1.80000	3.52910	.613	-5.3124	8.9124
aset_100	aset_200	12.40000(*)	3.52910	.001	5.2876	19.5124
	kontrol	-24.60000(*)	3.52910	.000	-31.7124	-17.4876
	hs_12.5	-13.20000(*)	3.52910	.001	-20.3124	-6.0876
	hs_25	-10.80000(*)	3.52910	.004	-17.9124	-3.6876
	hs_50	-9.80000(*)	3.52910	.008	-16.9124	-2.6876
	hs_100	-5.60000	3.52910	.120	-12.7124	1.5124
	hs_200	-.60000	3.52910	.866	-7.7124	6.5124
	aset_12.5	-9.20000(*)	3.52910	.012	-16.3124	-2.0876
	aset_25	-6.00000	3.52910	.096	-13.1124	1.1124
	aset_50	-1.80000	3.52910	.613	-8.9124	5.3124
aset_200	aset_200	10.60000(*)	3.52910	.004	3.4876	17.7124
	kontrol	-35.20000(*)	3.52910	.000	-42.3124	-28.0876
	hs_12.5	-23.80000(*)	3.52910	.000	-30.9124	-16.6876
	hs_25	-21.40000(*)	3.52910	.000	-28.5124	-14.2876
	hs_50	-20.40000(*)	3.52910	.000	-27.5124	-13.2876
	hs_100	-16.20000(*)	3.52910	.000	-23.3124	-9.0876
	hs_200	-11.20000(*)	3.52910	.003	-18.3124	-4.0876
	aset_12.5	-19.80000(*)	3.52910	.000	-26.9124	-12.6876
	aset_25	-16.60000(*)	3.52910	.000	-23.7124	-9.4876
	aset_50	-12.40000(*)	3.52910	.001	-19.5124	-5.2876
	aset_100	-10.60000(*)	3.52910	.004	-17.7124	-3.4876

## Lampiran 5

### ED<sub>50</sub> Analgesik asam asetilsalisilat (asetosal)

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

Confidence Limits for Effective dosis

Prob	dosis	95% Confidence Limits	
		Lower	Upper
.01	-253.62103	-361.07521	-188.72815
.02	-219.81110	-316.10250	-161.54282
.03	-198.35979	-287.58879	-144.27456
.04	-182.22280	-266.15215	-131.27121
.05	-169.09661	-248.72510	-120.68398
.06	-157.92415	-233.90025	-111.66429
.07	-148.12810	-220.90898	-103.74855
.08	-139.35690	-209.28336	-96.65444
.09	-131.37984	-198.71635	-90.19661
.10	-124.03695	-188.99507	-84.24650
.15	-93.63541	-148.81937	-59.53842
.20	-69.47323	-117.00705	-39.78318
.25	-48.74424	-89.84496	-22.70489
.30	-30.12896	-65.60922	-7.21140
.35	-12.87912	-43.35310	7.34752
.40	3.48928	-22.50939	21.43770
.45	19.32590	-2.73490	35.46213
.50	34.91143	16.15427	49.83604
.55	50.49697	34.22310	65.03027
.60	66.33359	51.49893	81.55337
.65	82.70199	68.12701	99.85917
.70	99.95182	84.49602	120.30522
.75	118.56710	101.22525	143.30521
.80	139.29610	119.14535	169.62548
.85	163.45828	139.48833	200.85007
.90	193.85982	164.62506	240.59712
.91	201.20271	170.64798	250.24558
.92	209.17976	177.17547	260.74294
.93	217.95096	184.33658	272.30156
.94	227.74702	192.31724	285.22790
.95	238.91947	201.40046	299.98923
.96	252.04567	212.05073	317.35324
.97	268.18266	225.11804	338.72592
.98	289.63397	242.45387	367.17205
.99	323.44390	269.71749	412.06648

Lampiran 6

ED<sub>50</sub> Analgesik asam 2-oktanoiloksibenzoat

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

Confidence Limits for Effective dosis


Prob	dosis	95% Confidence Limits	
		Lower	Upper
.01	-407.71920	-696.28151	-274.45831
.02	-346.61071	-599.34099	-229.64504
.03	-307.83933	-537.87551	-201.17228
.04	-278.67313	-491.66522	-179.72554
.05	-254.94868	-454.09901	-162.25798
.06	-234.75545	-422.14358	-147.37102
.07	-217.04993	-394.14245	-134.30054
.08	-201.19675	-369.08725	-122.58102
.09	-186.77892	-346.31637	-111.90675
.10	-173.50728	-325.37126	-102.06556
.15	-118.55916	-238.87254	-61.10073
.20	-74.88813	-170.54261	-28.12667
.25	-37.42228	-112.50295	.74347
.30	-3.77679	-61.30260	27.59080
.35	27.40078	-15.47687	54.08788
.40	56.98524	25.04411	82.19418
.45	85.60855	59.52450	114.11147
.50	113.77804	88.32817	150.65278
.55	141.94754	113.54312	190.78280
.60	170.57084	137.17804	233.54557
.65	200.15530	160.52298	278.82790
.70	231.33287	184.48569	327.18801
.75	264.97836	209.92924	379.79214
.80	302.44421	237.96285	438.66833
.85	346.11524	270.40037	507.53480
.90	401.06336	310.99511	594.40360
.91	414.33500	320.77506	615.40997
.92	428.75283	331.39116	638.23901
.93	444.60601	343.05510	663.34979
.94	462.31153	356.07208	691.40442
.95	482.50476	370.90701	723.41188
.96	506.22921	388.32326	761.02941
.97	535.39541	409.71824	807.29146
.98	574.16679	438.13665	868.81127
.99	635.27528	482.88740	965.814



## Sertifikat asam salisilat



**SIGMA-ALDRICH**



**Riedel-de Haën**

CERTIFICATE OF ANALYSIS /  
INSPECTION CERTIFICATE 3.1 acc. to DIN EN 10204

Sigma-Aldrich Laborchemikalien GmbH D-30918 Seelze  
Telefon: +49 5137 8238-0

Seelze, 26.05.2006/758895

Order-No.:  
Customer-No.:  
FAX-No.: 00498965134167  
Order-Code:

Order-Code 2: ph  
Quantity:

Production date: 22. Jul. 1993  
rec. Re-test Date: 31. Jul. 2006

Article/Product: 27301

Batch : 82030

Salicylic acid puriss., meets analytical specification of Ph. Eur., BP,  
USP


The quality certificate is valid for the time of delivery

assay (calc. to the dried substance)	99.7	%
melting range	159.7-160.4	°C
loss on drying	0.04	%
sulfated ash	< 0.05	%
heavy metals (as Pb)	< 0.001	%
chloride (Cl)	< 0.005	%
sulphate (SO <sub>4</sub> )	< 0.02	%
identity	complying	
appearance of the solution	complying	
related subst. (HPLC)	< 0.2	%
residual solvents	complying	

Identity, assay and impurities are complying to the monographs of the  
above mentioned pharmacopeias/codices.

- The minimum shelf life is based on the current knowledge and holds only for proper storage conditions in the originally closed flasks/ packages.
- We herewith confirm that the delivery is effected according to the technical delivery conditions agreed.
- The batch from which we delivered, showed the above-mentioned values.
- Particular properties of the products or the suitability for a particular area of application are not assured.
- We guarantee a proper quality within our General Conditions of Sales.

Sigma-Aldrich Laborchemikalien GmbH  
Quality Assurance



(Dr. Gande)

Works Inspector

Sertifikat asam asetilsalisilat (asetosal)

山东新华制药股份有限公司  
Shandong Xinhua Pharmaceutical Co., Ltd.  
14, Dongyi Road, Zhangdian, Zibo, Shandong, P.R. China

Certificate of Analysis

41062

产品名称: ASPIRIN Name of Product: ASPIRIN	取样日期: 2006-12-17 Sampling Date	报告日期: 2006-12-20 Report Date
批号: 06121854 Batch No	生产日期: 2005-12-15 Date of Manufacturing	失效期: 2010-12 Expiry Date
批量: 3930 kg Batch Size	检验记录号: 3150744 Record No	报告编号: 3150744 Report No
标准依据: BP2002/EP5.0/USP29 (20-60目) Reference Standard	包装量: 3925 kg Packing Quantity	
项目 Items	指标 Specifications	检验结果 Results
性状 Characters	白色结晶性粉末或白色结晶 A white, crystalline powder or white crystals.	白色结晶性粉末 A white, crystalline powder
鉴别: (BP2002/EP5.0) A. 红外 Identification: (BP2002/EP5.0) A. IR-spectrum	应符合规定 Complies	符合规定 Complies
B. 水杨酸熔点 (°C) B. melting point of salicylic acid (°C)	156-161	158.1
(USP) A. 三价铁反应试验 (USP) A. Ferric Acid reaction test	应符合规定 Complies	符合规定 Complies
B. 红外 B. IR-spectrum	应符合规定 Complies	符合规定 Complies
溶液外观 Appearance of solution	应澄清, 无色 Clear and Colourless	澄清, 无色 Clear and colourless
碳酸钠试液不溶物 Substances Insoluble in Sodium Carbonate TS	应澄清 Clear	澄清 Clear
易炭化物 Readily carbonizable substances	≤对照液Q ≤Matching Fluid Q	≤对照液Q ≤Matching Fluid Q
游离水杨酸 (%) Limit of free Salicylic Acid (%)	≤0.1	≤0.03
干燥失重 (%) Loss on drying (%)	≤0.5	0.06
炽灼残渣 (%) Residue on ignition (%)	≤0.05	0.03
氯化物 (%) Chloride (%)	≤0.014	≤0.011
硫酸盐 (%) Sulfate (%)	≤0.04	≤0.02
重金属 (%) Heavy metals (%)	≤0.001	≤0.0010
有机挥发杂质 Organic Volatile Impurities	应符合规定 Complies	符合规定 Complies
有关物质: 单个杂质 (%) Related substances: any single impurity (%)	≤0.1	0.02
总杂质 (%) Total impurities (%)	≤0.25	0.015
含量 (干品计, %) Assay (on dried basis, %)	99.5-100.5	99.9
粒度: 60目上 (%) Particle size: on 60 mesh (%)	≥84.0	91.4
结论: Conclusion:	符合BP2002/EP5.0/USP29 (20-60目) The product Complies with BP2002/EP5.0/USP29 (20-60mesh)	

QA放行人: 孙松亭  
Released by QA: 2006.12.21

质检负责人:  
QC Manager:

复核者: [Signature]  
Rechecked by:

报告者: [Signature]  
Reported by: