LAMPIRAN A

PERHITUNGAN NILAI pKA ASAM 3-KLOROBENZOIL SALISILAT DENGAN KONSENTRASI METANOL 6 %

pH	Serapan	pKa	pKa rata-rata
1,0	0,448	-	
3,0	0,311	2,66	
4,0	0,264	2,91	2,92
5,0	0,252	3,18	
10,0	0,249	-	

$$pKa = pH - \log \frac{A_{HA} - A_{obs}}{A_{obs} - A_{A^-}}$$

$$pKa = 3{,}0 - \log \frac{0{,}448 - 0{,}311}{0{,}311 - 0{,}249} = 2{,}66$$

$$pKa = 4{,}0 - \log \frac{0{,}448 - 0{,}264}{0{,}264 - 0{,}249} = 2{,}91$$

$$pKa = 5{,}0 - \log \frac{0{,}448 - 0{,}252}{0{,}252 - 0{,}249} = 3{,}18$$

$$pKa\ rata - rata = \frac{\left(pKa_{pH\,3{,}0} + pKa_{pH\,4{,}0} + pKa_{pH\,5{,}0}\right)}{3}$$

$$= \frac{\left(2{,}66 + 2{,}91 + 3{,}18\right)}{3} = 2{,}92$$

LAMPIRAN B

PERHITUNGAN NILAI pKA ASAM 3-KLOROBENZOIL SALISILAT DALAM PELARUT AIR

Replikasi	pKa
1	2,86
2	2,81
3	2,85
n = 3	$\bar{x}$ = 2,84
	SD = 0,026
	KV = (0,026 / 2,84) x 100 % = 0,93 %

$$\bar{x} = \frac{replikasi1 + replikasi2 + replikasi3}{n}$$

$$\bar{x} = \frac{2,86 + 2,81 + 2,85}{3}$$

$$\bar{x} = 2,84$$

$$SD = \sqrt{\frac{\sum x^2 - \frac{(\sum x)^2}{n}}{n-1}}$$

$$SD = \sqrt{\frac{(2,86^2 + 2,81^2 + 2,85^2) - \frac{(2,86+2,81+2,85)^2}{3}}{3-1}}$$

SD = 0,026

$$KV = \frac{SD}{\bar{x}} \text{ x } 100\ \%$$

$$KV = \frac{0,026}{2,84} \text{ x } 100\ \% = 0,93\ \%$$

LAMPIRAN C

TABEL UJI R

DEGREES OF FREEDOM (DF)	5 PERCENT	1 PERCENT	DEGREES OF FREEDOM (DF)	5 PERCENT	1 PERCENT
1	.997	.1.000	24	.388	.496
2	.950	.990	25	.381	.487
3	.878	.959	26	.374	.478
4	.811	.917	27	.367	.470
5	.754	.874	28	.361	.463
6	.707	.834	29	.355	.456
7	.666	.798	30	.349	.449
8	.632	.765	35	.325	.418
9	.602	.735	40	.304	.393
10	.576	.708	48	.288	.372
11	.553	.684	50	.273	.354
12	.532	.661	60	.250	.325
13	.514	.641	70	.232	.302
14	.497	.623	80	.217	.283
15	.482	.606	90	.205	.267
16	.468	.590	100	.195	.254
17	.456	.575	125	.174	.228
18	.444	.561	150	.159	.208
19	.433	.549	200	.138	.181
20	.423	.537	300	.113	.148
21	.413	.526	400	.098	.128
22	.404	.515	500	.088	.115
23	.396	.505	1000	.062	.081

Sumber: Soedigdo & Soedigdo (1977).

LAMPIRAN D

SERTIFIKAT ASAM SALISILAT

06/05/26 17:21 Honeywell Specialty Chemicals Seelze GmbH (+49 5137 999 164) --> 0,00498965134167 p. 1/1

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.1998
Rec. Retest Date: 31.Jul.2006

Article/Product: 27301 Batch : 82030

Salicylic acid puriss., meets analytical specifivation 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 (SO4)	<	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. Gaede)
Works Inspector

LAMPIRAN E

Laporan Hasil Pemeriksaan Senyawa

1. Nama senyawa : Asam 3-Klorobenzoilsalisilat
2. Dibuat oleh : Siswandono
3. Tanggal dibuat : 9 Maret 2010
4. Rendemen : 63%
5. Pemeriksaan :

No.	Jenis Pemeriksaan	Hasil Pemeriksaan
1. 2. 3. 4.	Pemerian/Organoleptis Jarak lebur Kelarutan Uji KLT(3 eluen)	Serbuk, warna putih, tidak berbau. 137-139°C. Metanol, etanol, aseton, kloroform. 1 noda.
5.	Spektrum UV: λ maks. (nm) Dalam pelarut etanol	207 dan 227
6.	Spektrum IR : ν (cm^{-1}) Dalam pelet KBr	1743 (–C=O, ester); 1695 (–C=O, asam); 1575 (–C=C- aromatis); 1250 (-C-O, ester)
7.	Spektrum ^{1H}NMR : δ (ppm) Dalam pelarut DMSO-D_6	13,08, s, (-COOH); 7,33-8,20, m, (8H dari 2 cincin benzena -C_6H_4);

Kesimpulan : Senyawa adalah Asam 3-Klorobenzoilsalisilat.

Surabaya, 2 Februari 2011

Ketua Peneliti,

Siswandono

Prof. Dr. Siswandono, MS.

Mengetahui:
Ketua Departemen Kimia Farmasi
Fakultas Farmasi Unair

Marcellino Rudyanto, MSi, Ph.D
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