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LAMPIRAN

Lampiran 1. Surat Keterangan Kode Etik Penelitian

	<p>YAYASAN HARAPAN BUNDA BATAM INSTITUT KESEHATAN MITRA BUNDA KOMITE ETIK PENELITIAN</p> <p>Jl. Seraya No 1 KOTA BATAM Telp/Fax (0778) 429431, website : http://ikmb.ac.id SURAT KEPUTUSAN MENTERI PENDIDIKAN DAN KEBUDAYAAN REPUBLIK INDONESIA No. 284/M/2020</p>
<p>KOMITE ETIK PENELITIAN INSTITUT KESEHATAN MITRA BUNDA <i>THE RESEARCH ETHICAL COMMITTEE INSTITUT KESEHATAN MITRA BUNDA</i></p>	
<p>SURAT KETERANGAN <i>ETHICAL APPROVAL</i> No. 053/K/KEP/IKMB/VII/2025</p>	
<p>Komite Etik Penelitian Institut Kesehatan Mitra Bunda, menyatakan dengan ini bahwa penelitian dengan judul : <i>The Research Ethical Committee of Institut Kesehatan Mitra Bunda states hereby that the following proposal :</i></p>	
<p>"Analisis Kadar Asam Salisilat Pada Sediaan Krim Anti Jerawat Di Toko Kosmetik X Di Kota Batam" <i>"Analysis of Salicylic Acid Levels in Anti-Acne Cream Preparations at X Cosmetic Shop in Batam City"</i></p>	
Peneliti Utama <i>Principal Investigator</i>	: Rendi Kurnia Anggara
Lokasi Penelitian <i>Research Location</i>	: Laboratorium Kimia Farmasi
Waktu Penelitian <i>Time Schedule</i>	: Juni – Juli 2025
Responden/Subjek Penelitian : 6 Produk Krim <i>Respondent/Research Subject</i>	
Telah melalui prosedur kaji etik dan dinyatakan layak untuk dilaksanakan <i>Has proceeded the ethichal assessment procedure and been approved fot implementation</i>	
<p style="text-align: right;">Batam, 28 Juli 2025 Ketua / <i>Chairman,</i></p> <p style="text-align: right;"> dr. Ibnu Rushd, M.K.M</p>	

Lampiran 2. Sertifikat Analisis Asam Salisilat





LOBA
Chemie
LABORATORY REAGENTS
& FINE CHEMICALS


ISO 9001-2015 CERTIFIED

CERTIFICATE OF ANALYSIS


Product Name : SALICYLIC ACID 99.5% AR		
Lot No. : Sample COA	Release Date : 06-Jan-2025	
Mol. Formula : C7H6O3	Mol. Weight : 138.12	
Code No. : 05640	CAS No. : 69-72-7	
Mfg. Date : Jan-2025	Exp. Date : Dec-2029	
HAZ. / P.G. : -	UN No. : -	

Sr.	Tests	Specifications	Results
1	Appearance	A white powder.	A white powder.
2	Assay	Min 99.5%	100.1%
3	Melting point	159 - 161 deg C	159.4°C
4	Alcohol insoluble matter	Max 0.005%	<0.005%
5	Sulphated ash	Max 0.05%	0.003%
6	Chloride (Cl)	Max 0.001%	0.001%
7	Sulphate (SO4)	Max 0.02%	0.01%
8	Copper (Cu)	Max 0.0002%	0.00003%
9	Iron (Fe)	Max 0.0002%	0.0002%
10	Lead (Pb)	Max 0.0002%	Not detected

CONCLUSION - This above product complies as per the specifications of **LOBA CHEMIE PVT. LTD.**



Monil Tandell
Chemist



Shashikant Gaikwad
QC Manager

LOBA CHEMIE PVT. LTD.

Mfg. Add.: LOBA Chemie Pvt. Ltd. Plot No. D-22, MIDC Tarapur, Boisar, Tal. & Dist.-Palghar, Maharashtra-401506
Tel: 91.02525-663630/39/34

HO Add.: Loba Chemie Pvt. Ltd., Jehangir Villa, 107, Wodehouse Road., Colaba, Mumbai, Maharashtra – 400005
Customer Care No: +9122 66636663/Email:info@lobachemie.com www.lobachemie.com

LOBAQC/FM/01

06/01.06.2023

Lampiran 3. Sertifikat Analisis Metanol

Certificate of Analysis

1.06009.2500 Methanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur
Batch 11258409

Sn (Tin)	≤ 0.00001	%	≤ 0.00001	%
Ti (Titanium)	≤ 0.000002	%	≤ 0.000002	%
Tl (Thallium)	≤ 0.000002	%	≤ 0.000002	%
V (Vanadium)	≤ 0.000002	%	≤ 0.000002	%
Zn (Zinc)	≤ 0.00001	%	≤ 0.00001	%
Zr (Zirconium)	≤ 0.000002	%	≤ 0.000002	%
Evaporation residue	≤ 0.0005	%	< 0.0001	%
Water	≤ 0.05	%	< 0.01	%

ACS, ISO, Reag Ph Eur

Date of release (DD.MM.YYYY) 01.12.2022
Minimum shelf life (DD.MM.YYYY) 31.10.2027

Jeannette David
Responsible laboratory manager quality control

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The life science business of Merck KGaA, Darmstadt,
Germany operates as MilliporeSigma in the U.S. and
Canada.

Page 2 of 2

CS Dipindag dengan CamScanner

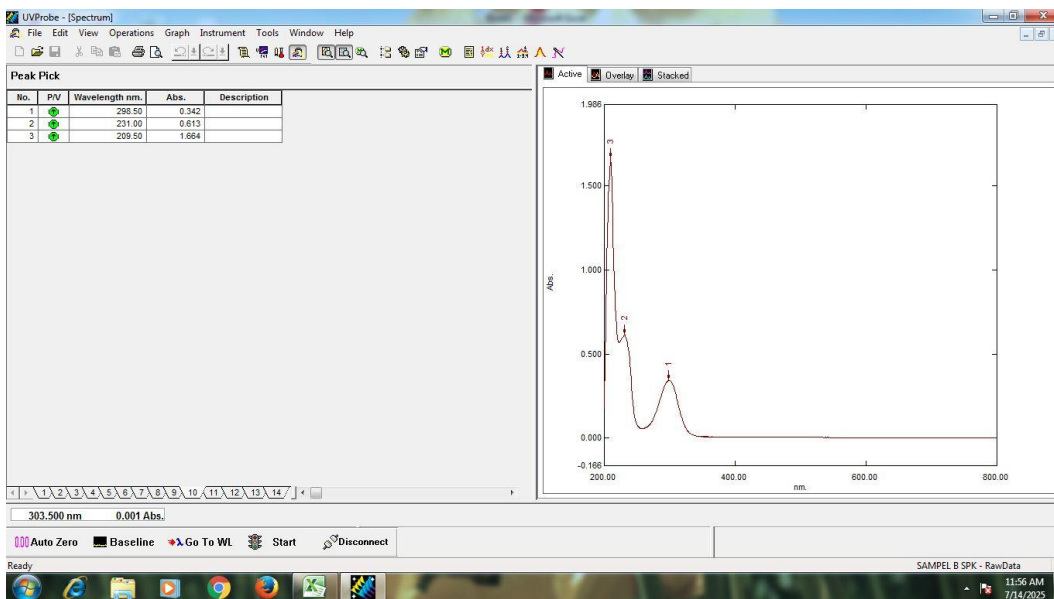
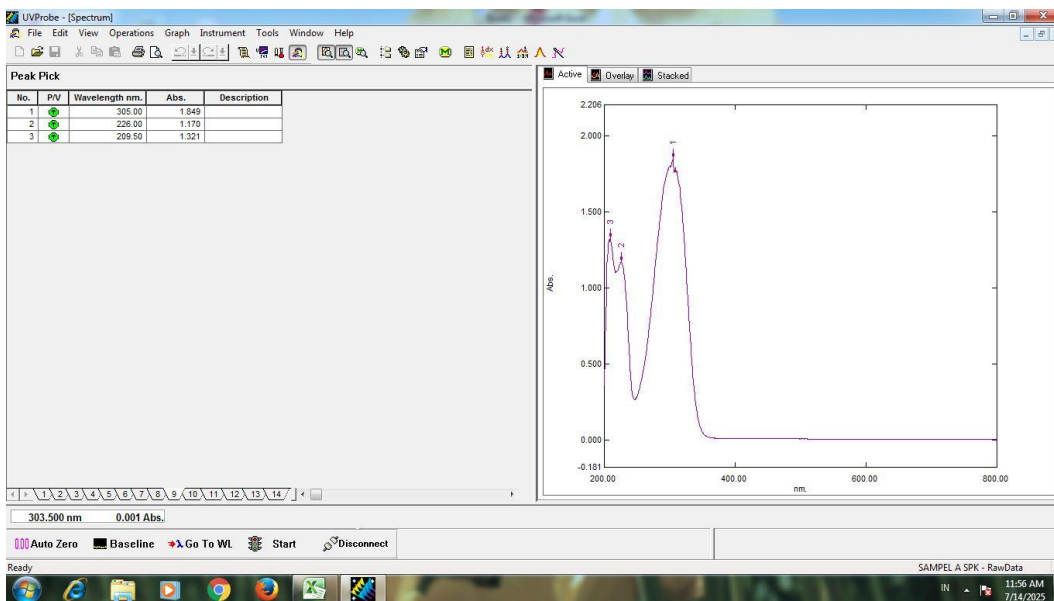
Lampiran 4. Enam Sampel Krim



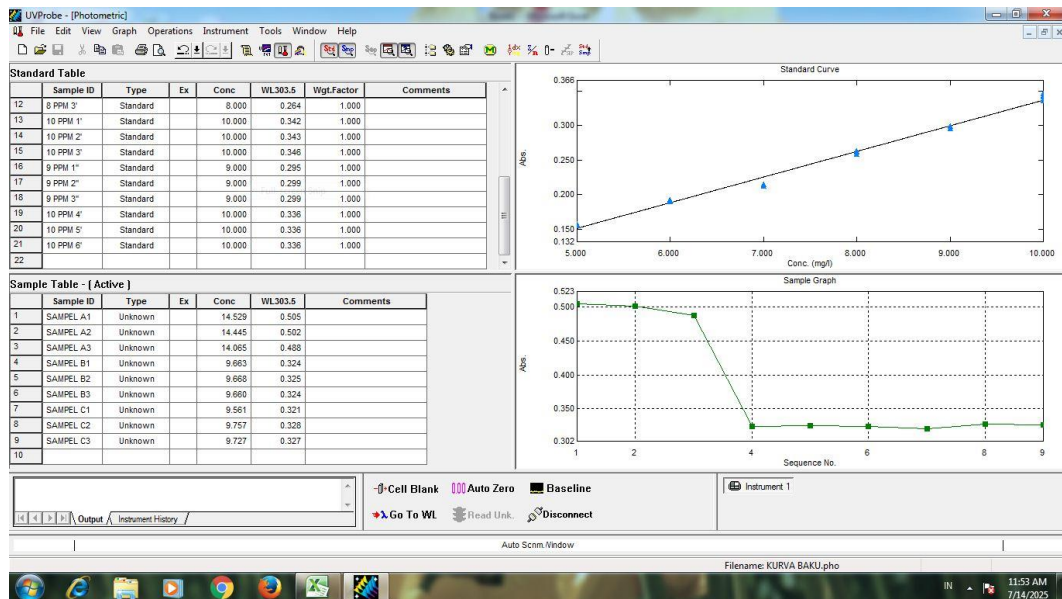
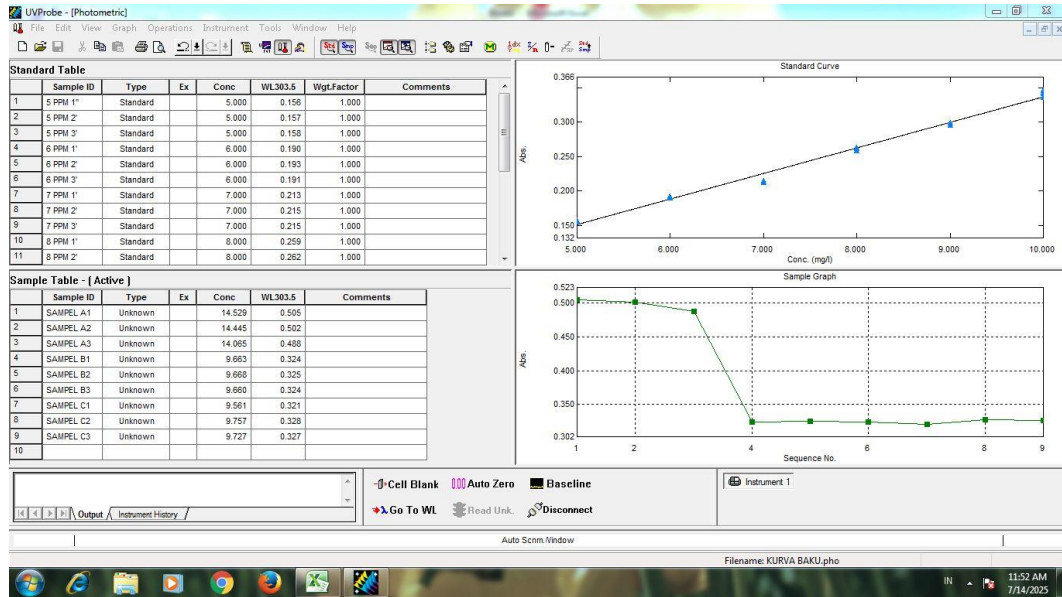
Lampiran 5. Analisis Kualitatif Sampel dengan FeCl₃ 1%



Lampiran 6. Spektrum Sampel A dan B



Lampiran 7. Data Absorbansi Larutan Kurva & Sampel



Lampiran 8. Perhitungan Larutan Standar Asam Salisilat 1000 Ppm

- Larutan Standar 1000 Ppm

$$1 \text{ Ppm} = 1 \text{ mg/L}$$

$$1000 \text{ Ppm} = 1000 \text{ mg/L}$$

$$1000 \text{ Ppm} = 50 \text{ mg/ } 0,05 \text{ mL}$$

$$= (50 \text{ mg/ } 50 \text{ mL})$$

- Larutan Standar 1000 Ppm ke 100 Ppm

$$V_1 \times M_1 = V_2 \times M_2$$

$$V_1 = \frac{V_2 \times M_2}{M_1}$$

$$V_1 = \frac{50 \text{ mL} \times 100 \text{ Ppm}}{1000 \text{ Ppm}}$$

$$= 5 \text{ mL}$$

Lampiran 9. Perhitungan Konsentrasi Larutan Kurva Baku Asam Salisilat

1. Larutan 5 Ppm

$$\begin{aligned}V_1 \times M_1 &= V_2 \times M_2 \\V_1 &= \frac{10 \text{ mL} \times 5 \text{ Ppm}}{100 \text{ Ppm}} \\&= 0,5 \text{ mL}\end{aligned}$$

2. Larutan 6 Ppm

$$\begin{aligned}V_1 \times M_1 &= V_2 \times M_2 \\V_1 &= \frac{10 \text{ mL} \times 6 \text{ Ppm}}{100 \text{ Ppm}} \\&= 0,6 \text{ mL}\end{aligned}$$

3. Larutan 7 Ppm

$$\begin{aligned}V_1 \times M_1 &= V_2 \times M_2 \\V_1 &= \frac{10 \text{ mL} \times 7 \text{ Ppm}}{100 \text{ Ppm}} \\&= 0,7 \text{ mL}\end{aligned}$$

4. Larutan 8 Ppm

$$\begin{aligned}V_1 \times M_1 &= V_2 \times M_2 \\V_1 &= \frac{10 \text{ mL} \times 8 \text{ Ppm}}{100 \text{ Ppm}} \\&= 0,8 \text{ mL}\end{aligned}$$

5. Larutan 9 Ppm

$$\begin{aligned}V_1 \times M_1 &= V_2 \times M_2 \\V_1 &= \frac{10 \text{ mL} \times 9 \text{ Ppm}}{100 \text{ Ppm}} \\&= 0,9 \text{ mL}\end{aligned}$$

6. Larutan 10 Ppm

$$\begin{aligned}V_1 \times M_1 &= V_2 \times M_2 \\V_1 &= \frac{10 \text{ mL} \times 10 \text{ Ppm}}{100 \text{ Ppm}} \\&= 1 \text{ mL}\end{aligned}$$

Lampiran 10. Perhitungan Nilai Korelasi (Linearitas)

No.	Konsentrasi Ppm (x)	Absorbansi	Rata- rata Absorbansi	X ²	Y ²	XY
1.	5 Ppm	0,156	0,157	25	0,024649	0,785
		0,157				
		0,158				
2.	6 Ppm	0,19	0,191	36	0,036481	1,146
		0,193				
		0,191				
3.	7 Ppm	0,213	0,214	49	0,045796	1,498
		0,215				
		0,264				
4.	8 Ppm	0,259	0,262	64	0,068644	2,096
		0,262				
		0,264				
5.	9 Ppm	0,295	0,298	81	0,088804	2,682
		0,299				
		0,299				
6.	10 Ppm	0,342	0,344	100	0,118336	3,44
		0,343				
		0,346				
Σ	45	1,466		355	0,38271	11,647

$$\begin{aligned}
 \text{Perhitungan : } & \frac{n \times (\sum XY) - (\sum X)(\sum Y)}{\sqrt{n(\sum X^2) - (\sum X)^2} \times \sqrt{n(\sum Y^2) - (\sum Y)^2}} \\
 & = \frac{(6 \times 11,647) - (45)(1,466)}{\sqrt{((6 \times 355) - (45)^2) \times \sqrt{((6 \times 0,38271) - (1,466)^2)}}} \\
 & = \frac{3,912}{3,930129769} \\
 & = 0,99538698
 \end{aligned}$$

Lampiran 11. Perhitungan Nilai Akurasi

No.	Konsentrasi (Ppm)	Absorbansi	Konsentrasi Terukur	% Recovery	Rata-rata % Recovery
1.	8	0,259	7,884718499	98,55898123	99,56%
		0,262	7,965147453	99,56434316	
		0,264	8,018766756	100,2345845	
2.	9	0,295	8,849865952	98,33184391	99,22%
		0,299	8,957104558	99,52338397	
		0,299	8,957104558	99,52338397	
3.	10	0,342	10,10991957	101,0991957	101,63%
		0,343	10,13672922	101,3672922	
		0,346	10,21715818	102,1715818	

Persamaan Regresi Linear $y = 0,0373x - 0,0351$

$$\% \text{ Recovery} = \frac{\text{Konsentrasi yang Diperoleh}}{\text{Konsentrasi Sebenarnya}} \times 100\%$$

Perhitungan:

1. Konsentrasi 8 Ppm

- Replikasi I

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,259 + 0,0351}{0,0373}$$

$$= 7,884 \text{ Ppm}$$

$$\% \text{ Recovery} = \frac{7,884 \text{ Ppm}}{8 \text{ Ppm}} \times 100\%$$

$$= 98,55\%$$

- Replikasi II

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,262 + 0,0351}{0,0373}$$

$$= 7,965 \text{ Ppm}$$

$$\% \text{ Recovery} = \frac{7,965 \text{ Ppm}}{8 \text{ Ppm}} \times 100\% = 99,56\%$$

- Replikasi III

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,264 + 0,0351}{0,0373}$$

$$= 8,018 \text{ Ppm}$$

$$\begin{aligned} \% \text{ Recovery} &= \frac{8,018 \text{ Ppm}}{8 \text{ Ppm}} \times 100\% \\ &= 100,23\% \end{aligned}$$

2. Konsentrasi 9 Ppm

- Replikasi I

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,295 + 0,0351}{0,0373}$$

$$= 8,849 \text{ Ppm}$$

$$\begin{aligned} \% \text{ Recovery} &= \frac{8,849 \text{ Ppm}}{9 \text{ Ppm}} \times 100\% \\ &= 98,33\% \end{aligned}$$

- Replikasi II

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,299 + 0,0351}{0,0373}$$

$$= 8,957 \text{ Ppm}$$

$$\begin{aligned} \% \text{ Recovery} &= \frac{8,957 \text{ Ppm}}{9 \text{ Ppm}} \times 100\% \\ &= 99,52\% \end{aligned}$$

- Replikasi III

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,299 + 0,0351}{0,0373}$$

$$= 8,957 \text{ Ppm}$$

$$\begin{aligned} \% \text{ Recovery} &= \frac{8,957 \text{ Ppm}}{9 \text{ Ppm}} \times 100\% \\ &= 99,52\% \end{aligned}$$

3. Konsentrasi 10 Ppm

- Replikasi I

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,342 + 0,0351}{0,0373}$$

$$= 10,10 \text{ Ppm}$$

$$\% \text{ Recovery} = \frac{10,10 \text{ Ppm}}{10 \text{ Ppm}} \times 100\%$$

$$= 101,09\%$$

- Replikasi II

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,343 + 0,0351}{0,0373}$$

$$= 10,13 \text{ Ppm}$$

$$\% \text{ Recovery} = \frac{10,13 \text{ Ppm}}{10} \times 100\%$$

$$= 101,36\%$$

- Replikasi III

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,346 + 0,0351}{0,0373}$$

$$= 10,21 \text{ Ppm}$$

$$\% \text{ Recovery} = \frac{10,21 \text{ Ppm}}{10} \times 100\%$$

$$= 102,17\%$$

Lampiran 12. Perhitungan Nilai Presisi

Konsentrasi (Ppm)	Absorbansi	Rata-rata Absorbansi	SD	%RSD
10	0,342	0,340	0,0044	1,29%
	0,343			
	0,346			
	0,336			
	0,336			
	0,336			

Perhitungan:

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

$$= 0,0044$$

$$\bullet \quad \% \text{ RSD} = \frac{SD}{\text{Rata-rata Absorbansi}} \times 100\%$$

$$\% \text{ RSD} = \frac{0,0044}{0,340} \times 100\%$$

$$= 1,29\%$$

Lampiran 13. Perhitungan Nilai LoD dan LoQ

No.	Konsentrasi	Absorbansi (Y)	Konsentrasi Terukur (Y')	(Y-Y')	(Y-Y') ²
1.	3	0,157	0,1514	0,0056	0,00003136
2.	6	0,191	0,1887	0,002633333	6,93444E-06
3.	9	0,214	0,226	0,033	0,001089
4.	12	0,262	0,2633	-0,001633333	2,66778E-06
5.	15	0,298	0,3006	-0,002933333	8,60444E-06
6.	18	0,344	0,3379	0,005766667	3,32544E-05
Jumlah					0,001171821
SD					0,015308959
LoD					1,231283557
LoQ					4,104278522

1. Perhitungan Nilai Y':

- Konsentrasi 5 Ppm
 $y = 0,0373x - 0,0351$
 $y = 0,0373(5) - 0,0351$
 $y = 0,1514$
- Konsentrasi 6 Ppm
 $y = 0,0373x - 0,0351$
 $y = 0,0373(6) - 0,0351$
 $y = 0,1887$
- Konsentrasi 7 Ppm
 $y = 0,0373x - 0,0351$
 $y = 0,0373(7) - 0,0351$
 $y = 0,226$
- Konsentrasi 8 Ppm
 $y = 0,0373x - 0,0351$
 $y = 0,0373(8) - 0,0351$
 $y = 0,2633$

- Konsentrasi 9 Ppm
 $y = 0,0373x - 0,0351$
 $y = 0,0373(9) - 0,0351$
 $y = 0,3006$
- Konsentrasi 10 Ppm
 $y = 0,0373x - 0,0351$
 $y = 0,0373(10) - 0,0351$
 $y = 0,3379$

2. Perhitungan LoD dan LoQ

- LoD

$$\begin{aligned} \text{LoD} &= \frac{3 \times SD}{\text{slope}} \\ &= \frac{3 \times 0,015308959}{0,0373} \\ &= 1,23 \text{ Ppm} \end{aligned}$$

- LoQ

$$\begin{aligned} \text{LoQ} &= \frac{10 \times SD}{0,0373} \\ &= \frac{10 \times 0,015308959}{0,0373} \\ &= 4,10 \text{ Ppm} \end{aligned}$$

Lampiran 14. Perhitungan Kadar Asam Salisilat pada Sampel

$$\% \text{ Kadar} = x \frac{\left(\frac{\text{mg}}{\text{L}}\right) \times V(L) \times Fp}{\text{Berat Sampel}(\text{mg})} \times 100\%$$

1. Sampel A

- Replikasi I

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,505 + 0,0351}{0,0373}$$

$$x = 14,48$$

$$\begin{aligned} \% \text{ Kadar} &= \frac{14,48 \frac{\text{mg}}{\text{mL}} \times 0,025 \text{ L} \times 10^4}{3000} \\ &= 1,25\% \end{aligned}$$

- Replikasi II

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,502 + 0,0351}{0,0373}$$

$$x = 14,4$$

$$\begin{aligned} \% \text{ Kadar} &= \frac{14,4 \frac{\text{mg}}{\text{mL}} \times 0,025 \text{ L} \times 10^4}{3000} \\ &= 1,24\% \end{aligned}$$

- Replikasi III

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,488 + 0,0351}{0,0373}$$

$$x = 14,02$$

$$\begin{aligned} \% \text{ Kadar} &= \frac{14,02 \frac{\text{mg}}{\text{mL}} \times 0,025 \text{ L} \times 10^4}{3000} \\ &= 1,21\% \end{aligned}$$

$$\text{Rata-rata} = \frac{1,25 + 1,24 + 1,21}{3} = 1,23\%$$

2. Sampel B

- Replikasi I

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,324 + 0,0351}{0,0373}$$

$$x = 9,63$$

$$\begin{aligned} \% \text{ Kadar} &= \frac{9,63 \frac{\text{mg}}{\text{mL}} \times 0,025 \text{ L} \times 10^4}{3000} \\ &= 0,83\% \end{aligned}$$

- Replikasi II

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,325 + 0,0351}{0,0373}$$

$$x = 9,65$$

$$\begin{aligned} \% \text{ Kadar} &= \frac{9,65 \frac{\text{mg}}{\text{mL}} \times 0,025 \text{ L} \times 10^4}{3000} \\ &= 0,83\% \end{aligned}$$

- Replikasi III

$$y = 0,0373x - 0,0351$$

$$x = \frac{0,324 + 0,0351}{0,0373}$$

$$x = 9,63$$

$$\begin{aligned} \% \text{ Kadar} &= \frac{9,63 \frac{\text{mg}}{\text{mL}} \times 0,025 \text{ L} \times 10^4}{3000} \\ &= 0,83\% \end{aligned}$$

$$\text{Rata-rata} = \frac{0,83 + 0,83 + 0,83}{3} = 0,83\%$$