



LAMPIRAN – LAMPIRAN

Lampiran 1. Perhitungan Kadar Sampel CRM 2,43 ppm

Tabel 4.1  
Konsentrasi dan Kadar Emas Sampel CRM 2,43 ppm

Ulangan	Kadar CRM Emas Berbagai Volume Larutan (ppm)							
	5 mL	C	10 mL	C	20 mL	C	40 mL	C
1	2,43	0,270	2,45	0,540	2,39	1,060	2,23	1,984
2	2,48	0,275	2,45	0,544	2,30	1,023	2,24	1,993
3	2,43	0,270	2,53	0,563	2,41	1,071	2,17	1,931
4	2,37	0,263	2,45	0,544	2,32	1,033	2,34	2,082
5	2,44	0,271	2,43	0,540	2,26	1,004	2,39	2,125
6	2,48	0,275	2,41	0,535	2,41	1,072	2,22	1,971
7	2,42	0,269	2,39	0,532	2,38	1,056	2,30	2,042
8	2,39	0,265	2,46	0,546	2,38	1,057	2,31	2,056
9	2,45	0,272	2,44	0,543	2,37	1,053	2,30	2,048
10	2,44	0,271	2,46	0,547	2,40	1,065	2,22	1,975
11	2,39	0,266	2,53	0,563	2,40	1,065	2,26	2,011
12	2,42	0,538	2,39	0,531	2,35	1,043	2,37	1,957
13	2,47	0,274	2,43	0,541	2,43	1,081	2,37	2,106

Keterangan : C = Absorbansi (µg/mL)

Perhitungan

1. 5 mL (Ulangan 1)

$$\text{Au (ppm)} = \frac{C \times V \times F}{w}$$

$$\text{Au (ppm)} = \frac{C \times V \times \frac{\text{Volume DIBK}}{\text{Volume Larutan}}}{w} = \frac{0,270 \mu\text{g/mL} \times 225\text{mL} \times \frac{5\text{mL}}{5\text{mL}}}{25\text{g}} = 2,43 \frac{\mu\text{g}}{\text{g}}$$

2. 10 mL (Ulangan 1)

$$\text{Au (ppm)} = \frac{C \times V \times F}{W}$$

$$\text{Au (ppm)} = \frac{C \times V \times \frac{\text{Volume DIBK}}{\text{Volume Larutan}}}{W}$$

$$\text{Au (ppm)} = \frac{0,540 \mu\text{g/mL} \times 225\text{mL} \times \frac{5\text{mL}}{10\text{mL}}}{25\text{g}}$$

$$\text{Au (ppm)} = 2,45 \frac{\mu\text{g}}{\text{g}}$$

3. 20 mL (Ulangan 1)

$$\text{Au (ppm)} = \frac{C \times V \times F}{W}$$

$$\text{Au (ppm)} = \frac{C \times V \times \frac{\text{Volume DIBK}}{\text{Volume Larutan}}}{W}$$

$$\text{Au (ppm)} = \frac{1,060 \mu\text{g/mL} \times 225\text{mL} \times \frac{5\text{mL}}{20\text{mL}}}{25\text{g}}$$

$$\text{Au (ppm)} = 2,39 \frac{\mu\text{g}}{\text{g}}$$

4. 40 mL (Ulangan 1)

$$\text{Au (ppm)} = \frac{C \times V \times F}{W}$$

$$\text{Au (ppm)} = \frac{C \times V \times \frac{\text{Volume DIBK}}{\text{Volume Larutan}}}{W}$$

$$\text{Au (ppm)} = \frac{1,984 \mu\text{g/mL} \times 225\text{mL} \times \frac{5\text{mL}}{40\text{mL}}}{25\text{g}}$$

$$\text{Au (ppm)} = 2,23 \frac{\mu\text{g}}{\text{g}}$$

Lampiran 2. Uji Anova Menggunakan SPSS

**Tests of Normality**

Volume	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Kadar Au 5 mL	,138	13	,200*	,950	13	,597
10 mL	,235	13	,049	,885	13	,083
20 mL	,202	13	,150	,899	13	,131
40 mL	,133	13	,200*	,950	13	,605

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Test Results**

Box's M	6,177
F	Approx. 1,991
df1	3
df2	4147,200
Sig.	,113

Tests null hypothesis of equal population covariance matrices.

**ANOVA**

Kadar Au

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,209	3	,070	27,284	,000
Within Groups	,123	48	,003		
Total	,332	51			

**Multiple Comparisons**

Dependent Variable: Kadar Au

LSD

(I) Volume	(J) Volume	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
5 mL	10 mL	-,01615	,01984	,420	-,0560	,0237
	20 mL	,06231*	,01984	,003	,0224	,1022
	40 mL	,14538*	,01984	,000	,1055	,1853
10 mL	5 mL	,01615	,01984	,420	-,0237	,0560
	20 mL	,07846*	,01984	,000	,0386	,1184
	40 mL	,16154*	,01984	,000	,1216	,2014
20 mL	5 mL	-,06231*	,01984	,003	-,1022	-,0224
	10 mL	-,07846*	,01984	,000	-,1184	-,0386
	40 mL	,08308*	,01984	,000	,0432	,1230
40 mL	5 mL	-,14538*	,01984	,000	-,1853	-,1055
	10 mL	-,16154*	,01984	,000	-,2014	-,1216
	20 mL	-,08308*	,01984	,000	-,1230	-,0432

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

Lampiran 3. Perhitungan Uji Akurasi

Tabel 4.6  
Uji Akurasi

Ulangan	Volume Larutan			
	5 mL	10 mL	20 mL	40 mL
n	13	13	13	13
$\Sigma$	31,61	31,82	30,80	29,72
M (Konsentrasi Terukur)	2,43	2,45	2,37	2,29
Konsentrasi Sebenarnya	2,43	2,43	2,43	2,43
% Recovery	100,06	100,73	97,50	94,08

Perhitungan

1. n = Ulangan Pengujian Sampel

a. 5 mL

$$n = 13$$

b. 10 mL

$$n = 13$$

c. 20 mL

$$n = 13$$

d. 40 mL

$$n = 13$$

2.  $\Sigma$  = Jumlah Seluruh Kadar Sampel

a. 5 mL

$$\Sigma = n_1 + n_2 + \dots + n_{13} = 2,60 + 2,34 + \dots + 2,47 = 31,61$$

b. 10 mL

$$\Sigma = n_1 + n_2 + \dots + n_{13}$$

$$\Sigma = 2,56 + 2,64 + \dots + 2,43$$

$$\Sigma = 31,82$$

c. 20 mL

$$\Sigma = n_1 + n_2 + \dots + n_{13}$$

$$\Sigma = 2,43 + 2,38 + \dots + 2,43$$

$$\Sigma = 30,80$$

d. 40 mL

$$\Sigma = n_1 + n_2 + \dots + n_{13}$$

$$\Sigma = 2,22 + 2,35 + \dots + 2,37$$

$$\Sigma = 29,72$$

3. M = Median (Rata-rata)

a. 5 mL

$$M = \frac{\sum_{i=1}^n x}{n}$$

$$M = \frac{2,60 + 2,34 + \dots + 2,47}{18}$$

$$M = 2,43$$

b. 10 mL

$$M = \frac{\sum_{i=1}^n x}{n}$$

$$M = \frac{2,56 + 2,64 + \dots + 2,43}{18}$$

$$M = 2,45$$

c. 20 mL

$$M = \frac{\sum_{i=1}^n x}{n}$$

$$M = \frac{2,43 + 2,38 + \dots + 2,43}{18}$$

$$M = 2,37$$

d. 40 mL

$$M = \frac{\sum_{i=1}^n x}{n}$$

$$M = \frac{2,22 + 2,35 + \dots + 2,37}{18}$$

$$M = 2,29$$

4. M (Konsentrasi Terukur)

a. 5 mL

$$M = \frac{\sum_{i=1}^n x}{n}$$

$$M = \frac{2,60 + 2,34 + \dots + 2,47}{18}$$

$$M = 2,43$$

b. 10 mL

$$M = \frac{\sum_{i=1}^n x}{n}$$

$$M = \frac{2,56 + 2,64 + \dots + 2,43}{18}$$

$$M = 2,45$$

c. 20 mL

$$M = \frac{\sum_{i=1}^n x}{n}$$

$$M = \frac{2,43 + 2,38 + \dots + 2,43}{18}$$

$$M = 2,37$$

d. 40 mL

$$M = \frac{\sum_{i=1}^n x}{n}$$

$$M = \frac{2,22 + 2,35 + \dots + 2,37}{18}$$

$$M = 2,29$$

5. % Recovery

a. 5 mL

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

$$\% \text{ Recovery} = \frac{2,41}{2,43} \times 100\%$$

$$\% \text{ Recovery} = 100,06\%$$

b. 10 mL

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

$$\% \text{ Recovery} = \frac{2,45}{2,43} \times 100\%$$

$$\% \text{ Recovery} = 100,73\%$$

c. 20 mL

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

$$\% \text{ Recovery} = \frac{2,34}{2,43} \times 100\% = 97,50\%$$

d. 40 mL

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

$$\% \text{ Recovery} = \frac{2,28}{2,43} \times 100\%$$

$$\% \text{ Recovery} = 94,08\%$$



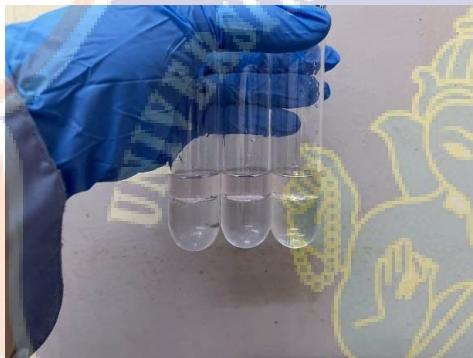
Lampiran 4. Dokumentasi Penelitian



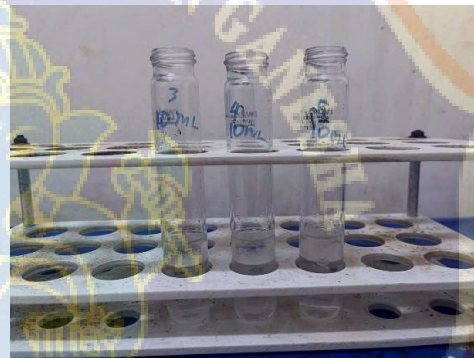
Sampel CRM 2,43 ppm



Digest Aqua Regia



Ekstraksi Volume 5 mL



Ekstraksi Volume 10 mL



Ekstraksi Volume 20 mL



Ekstraksi Volume 40 mL



Spektrofotometer Serapan Atom



Pipet Volumetri

