

LAMPIRAN

1. Tabel

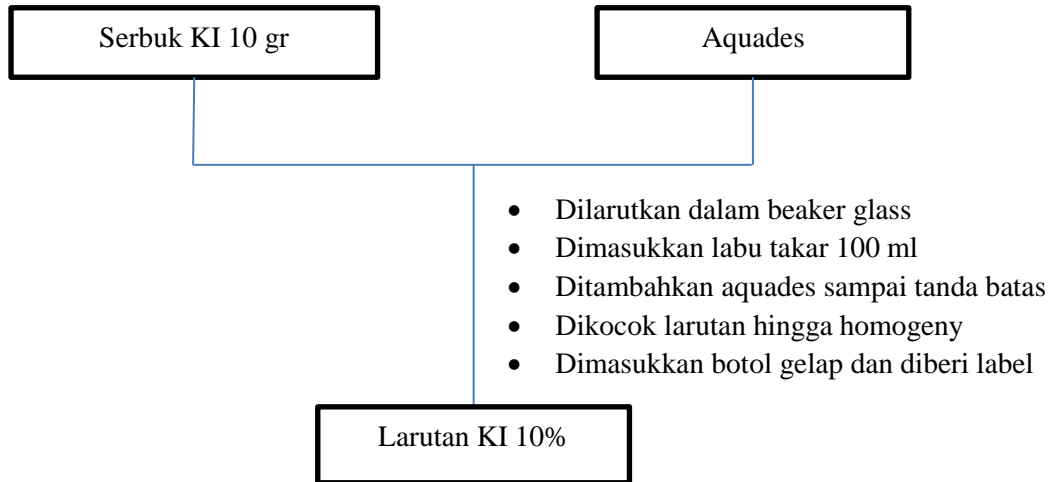
- a. Nilai Intensitas Standar Warna KIO_3 -Test Kit Yodium dari Berbagai Variasi Konsentrasi Replikasi 1,2,3

KONSENTRASI	R	G	B
0 ppm	160	158	161
	177	112	150
	171	150	147
10 ppm	108	112	131
	102	106	138
	105	97	103
20 ppm	95	76	82
	93	75	102
	93	76	83
30 ppm	83	74	68
	82	73	98
	82	73	65
40 ppm	73	64	61
	72	63	77
	72	64	60
50 ppm	64	61	48
	64	59	54
	63	55	54
60 ppm	56	52	45
	58	54	51
	56	44	46
70 ppm	49	45	42
	47	47	49
	49	40	43
80 ppm	45	35	33
	44	43	45
	43	38	38
90 ppm	41	32	23
	40	33	38
	40	30	28
100 ppm	34	30	19
	31	25	27
	36	20	27

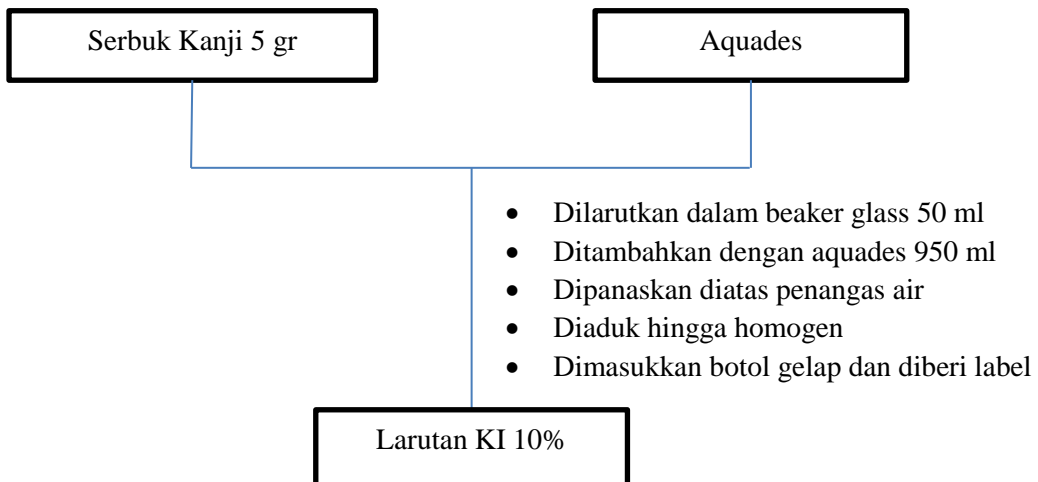
2. Skema Kerja

a. Pembuatan Larutan

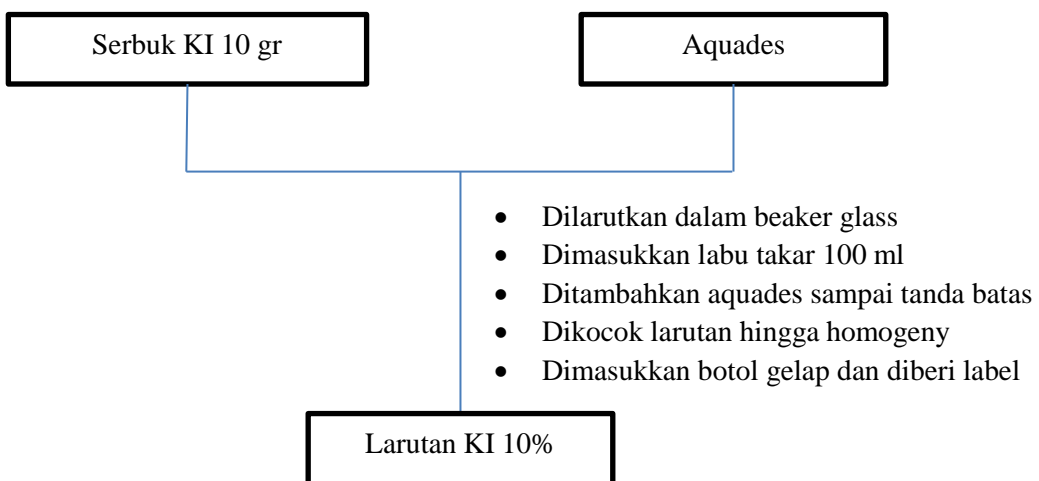
- Larutan KI 10%



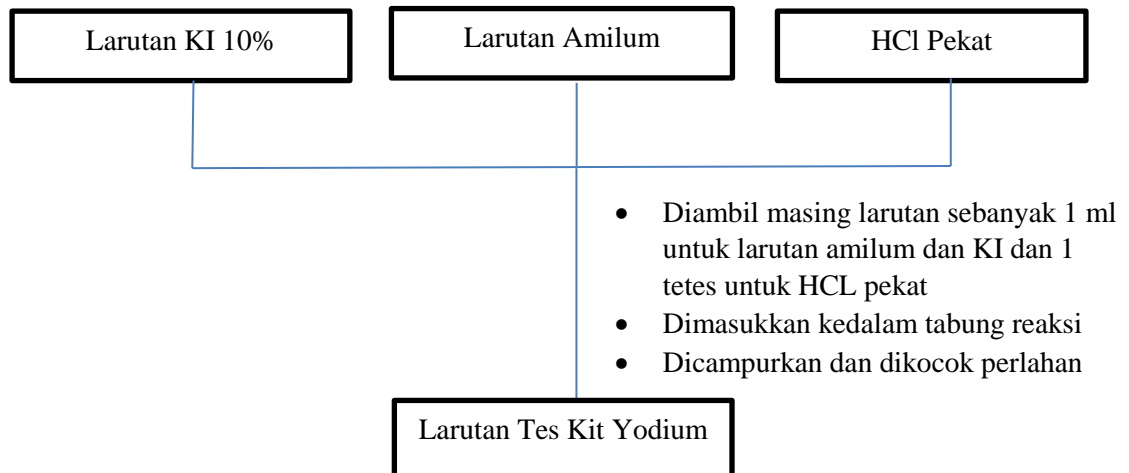
- Larutan amilum 1%



- Larutan Sampel

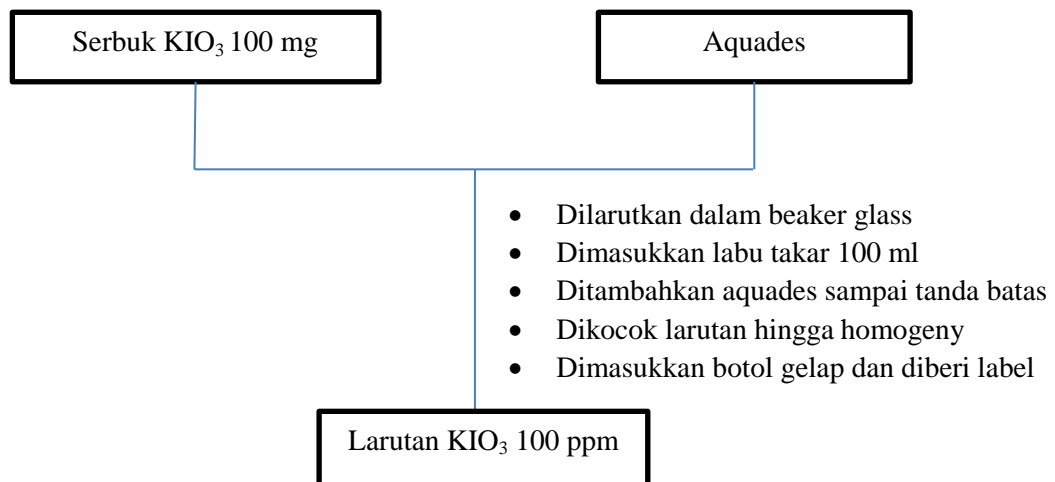


b. Pembuatan Test Kit Yodium

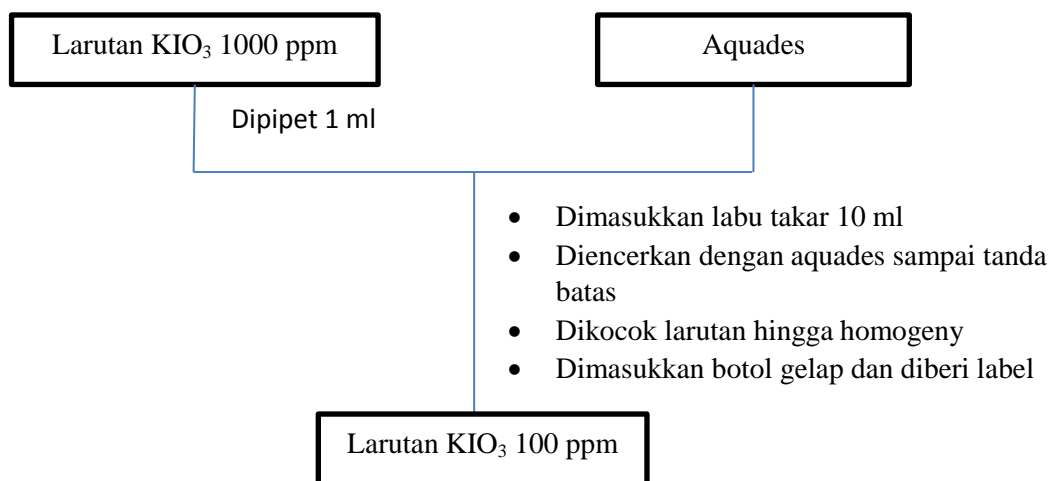


c. Pembuatan Standar Warna

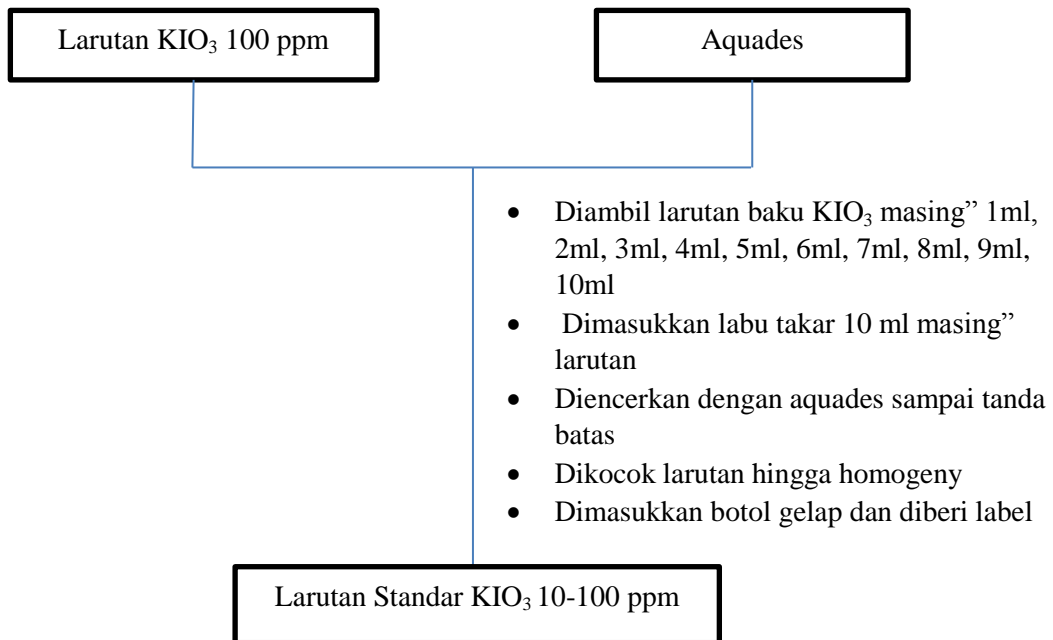
- Larutan Induk KIO_3 1000 ppm



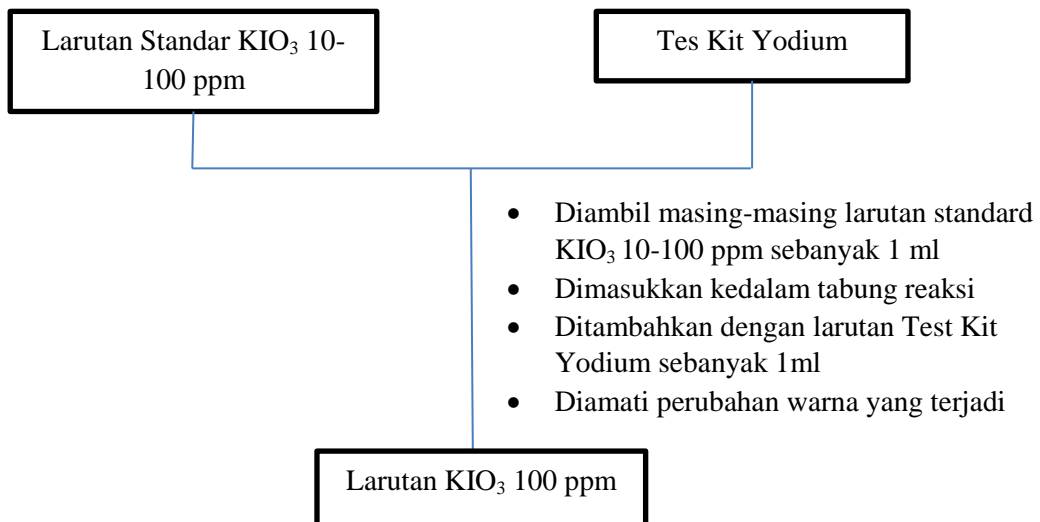
- Larutan Baku KIO_3 100 ppm



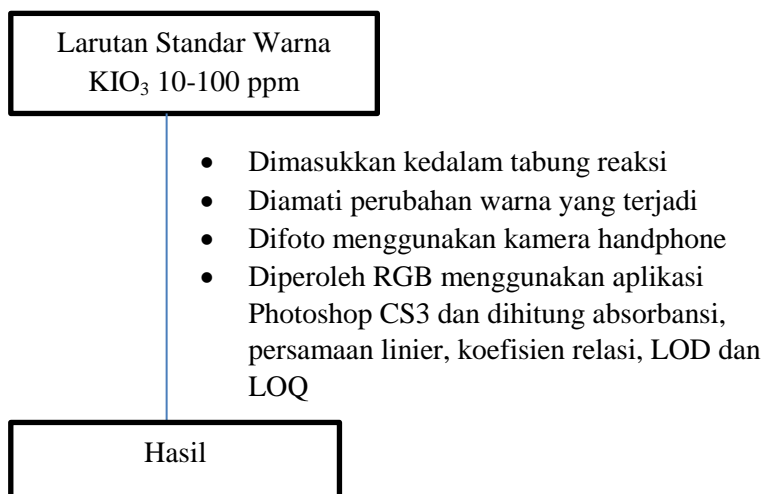
- Larutan Standar KIO_3 10-100 ppm



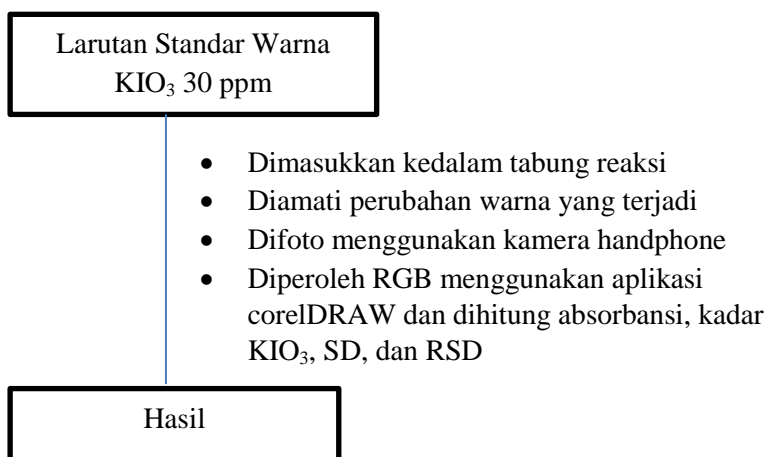
- Pembuatan Deret Warna Standar KIO_3



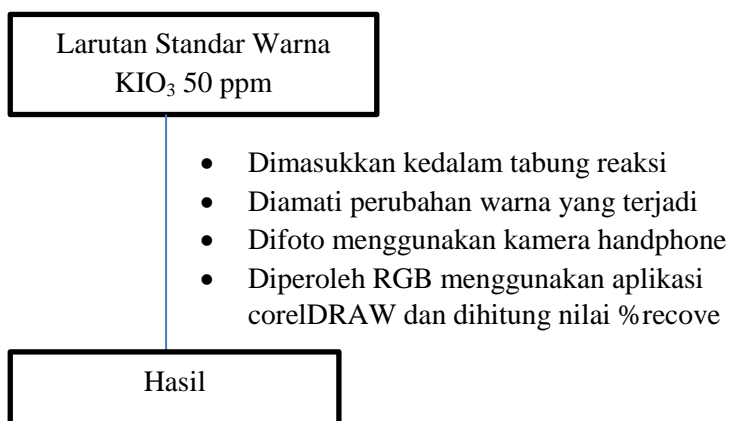
d. Uji Lineritas dengan Pencitraan Digital



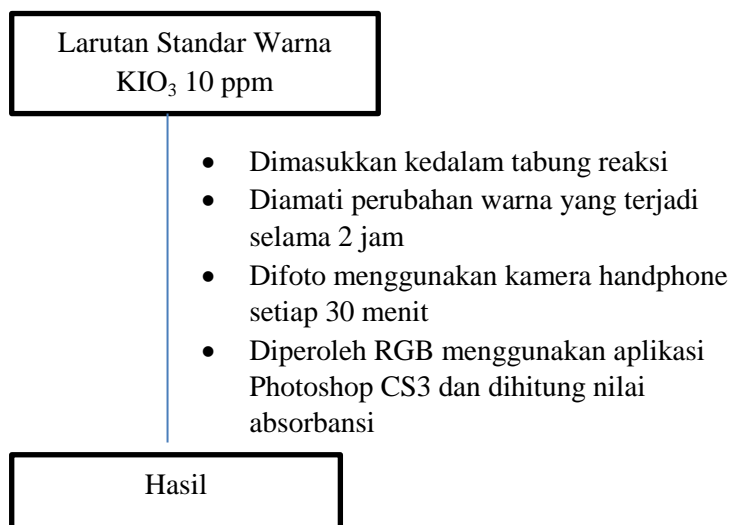
e. Presisi



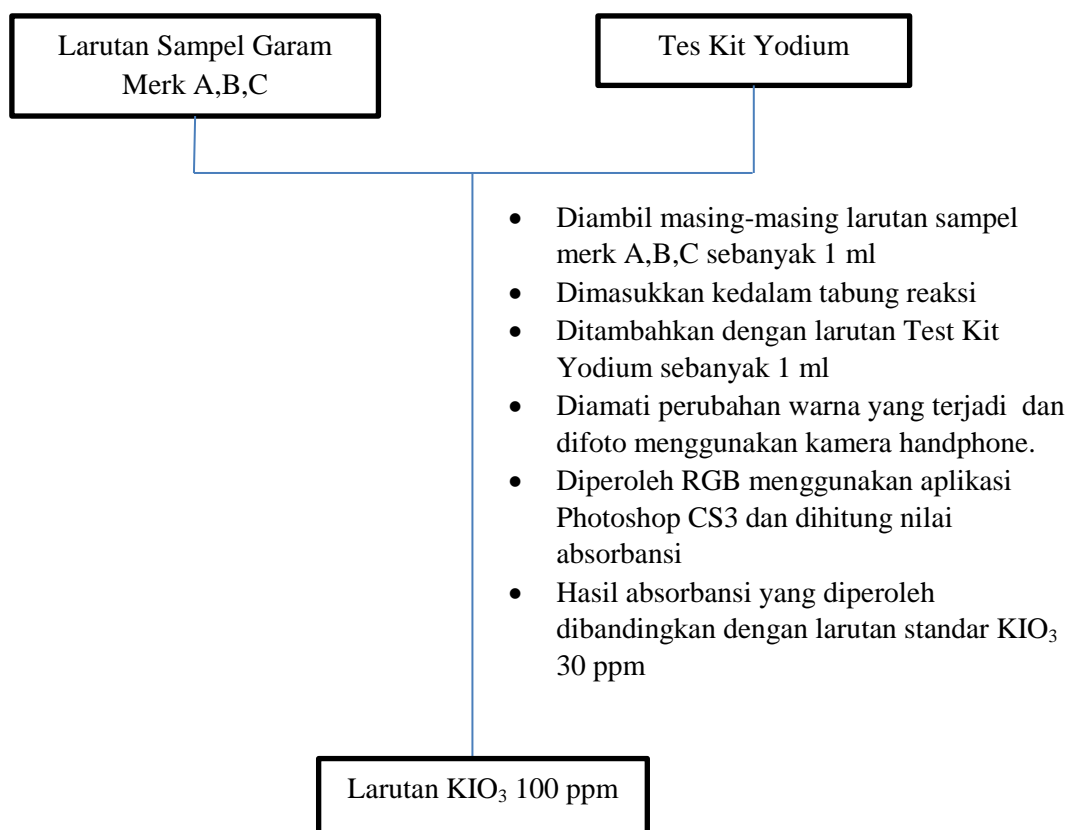
f. Akurasi



g. Uji Daya Simpan Test Kit Yodium



h. Aplikasi Larutan Test Kit Yodium Pada Sampel Garam



3. Perhitungan

a. Pembuatan Larutan

- Larutan KI 10%

Diketahui : % b/v = 10%

Volume larutan = 100 ml

Ditanya : Massa KI yang dibutuhkan ?

$$\text{Jawab} : \% \frac{b}{v} = \frac{\text{massa (gr)}}{\text{volume (ml)}} \times 100\%$$

$$10\% = \frac{\text{massa}}{100 \text{ ml}} \times 100\%$$

$$\text{massa} = 10 \text{ gram}$$

- Larutan Amilum 1%

Diketahui : % b/v = 1 %

Volume larutan = 1000 ml

Ditanya : Massa Amilum yang dibutuhkan ?

$$\text{Jawab} : \% \frac{b}{v} = \frac{\text{massa (gr)}}{\text{volume (ml)}} \times 100\%$$

$$1\% = \frac{\text{massa (gr)}}{1000 \text{ ml}} \times 100\%$$

$$\text{massa} = 5 \text{ gram}$$

- Larutan Induk KIO₃ 1000 ppm

Diketahui : M. KIO₃ = 1000 ppm = 1000 mg/L

Volume larutan = 100 ml = 0,1

Ditanya : Massa KIO₃ yang dibutuhkan ?

$$\text{Jawab} : M = \frac{\text{massa (mg)}}{\text{volume (L)}}$$

$$1000 \text{ mg/L} = \frac{\text{massa (mg)}}{0,1 \text{ L}}$$

$$\text{Massa} = 100 \text{ mg}$$

- Larutan Baku KIO₃ 100 ppm

Diketahui : M₁ = 1000 ppm

M₂ = 100 ppm

V₂ = 10 ml

Ditanya : Volume (V₁) yang dibutuhkan ?

$$\text{Jawab} : M_1 \times V_1 = M_2 \times V_2$$

$$1000 \text{ ppm} \times V_1 = 100 \text{ ppm} \times 10 \text{ ml}$$

$$V_1 = 1 \text{ ml}$$

- Larutan Standar KIO_3 10 ppm

Diketahui : $M_1 = 100 \text{ ppm}$

$$M_2 = 10 \text{ ppm}$$

$$V_2 = 10 \text{ ml}$$

Ditanya : Volume (V_1) yang dibutuhkan ?

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

$$100 \text{ ppm} \times V_1 = 10 \text{ ppm} \times 10 \text{ ml}$$

$$V_1 = 1 \text{ ml}$$

- Larutan Standar KIO_3 20 ppm

Diketahui : $M_1 = 100 \text{ ppm}$

$$M_2 = 20 \text{ ppm}$$

$$V_2 = 10 \text{ ml}$$

Ditanya : Volume (V_1) yang dibutuhkan ?

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

$$100 \text{ ppm} \times V_1 = 20 \text{ ppm} \times 10 \text{ ml}$$

$$V_1 = 2 \text{ ml}$$

- Larutan Standar KIO_3 30 ppm

Diketahui : $M_1 = 100 \text{ ppm}$

$$M_2 = 30 \text{ ppm}$$

$$V_2 = 10 \text{ ml}$$

Ditanya : Volume (V_1) yang dibutuhkan ?

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

$$100 \text{ ppm} \times V_1 = 30 \text{ ppm} \times 10 \text{ ml}$$

$$V_1 = 3 \text{ ml}$$

- Larutan Standar KIO_3 40 ppm

Diketahui : $M_1 = 100 \text{ ppm}$

$$M_2 = 40 \text{ ppm}$$

$$V_2 = 10 \text{ ml}$$

Ditanya : Volume (V_1) yang dibutuhkan ?

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

$$100 \text{ ppm} \times V_1 = 40 \text{ ppm} \times 10 \text{ ml}$$

$$V_1 = 4 \text{ ml}$$

- Larutan Standar KIO_3 50 ppm

Diketahui : $M_1 = 100 \text{ ppm}$

$$M_2 = 50 \text{ ppm}$$

$$V_2 = 10 \text{ ml}$$

Ditanya : Volume (V_1) yang dibutuhkan ?

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

$$100 \text{ ppm} \times V_1 = 50 \text{ ppm} \times 10 \text{ ml}$$

$$V_1 = 5 \text{ ml}$$

- Larutan Standar KIO_3 60 ppm

Diketahui : $M_1 = 100 \text{ ppm}$

$$M_2 = 60 \text{ ppm}$$

$$V_2 = 10 \text{ ml}$$

Ditanya : Volume (V_1) yang dibutuhkan ?

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

$$100 \text{ ppm} \times V_1 = 60 \text{ ppm} \times 10 \text{ ml}$$

$$V_1 = 6 \text{ ml}$$

- Larutan Standar KIO_3 70 ppm

Diketahui : $M_1 = 100 \text{ ppm}$

$$M_2 = 70 \text{ ppm}$$

$$V_2 = 10 \text{ ml}$$

Ditanya : Volume (V_1) yang dibutuhkan ?

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

$$100 \text{ ppm} \times V_1 = 70 \text{ ppm} \times 10 \text{ ml}$$

$$V_1 = 7 \text{ ml}$$

- Larutan Standar KIO_3 80 ppm

Diketahui : $M_1 = 100 \text{ ppm}$

$$M_2 = 80 \text{ ppm}$$

$$V_2 = 10 \text{ ml}$$

Ditanya : Volume (V_1) yang dibutuhkan ?

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

$$100\text{ppm} \times V_1 = 80 \text{ ppm} \times 10 \text{ ml}$$

$$V_1 = 8 \text{ ml}$$

- Larutan Standar KIO_3 90 ppm

Diketahui : $M_1 = 100 \text{ ppm}$

$$M_2 = 90 \text{ ppm}$$

$$V_2 = 10 \text{ ml}$$

Ditanya : Volume (V_1) yang dibutuhkan ?

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

$$100 \text{ ppm} \times V_1 = 90 \text{ ppm} \times 10 \text{ ml}$$

$$V_1 = 9 \text{ ml}$$

- Larutan Standar KIO_3 100 ppm

Diketahui : $M_1 = 100 \text{ ppm}$

$$M_2 = 100 \text{ ppm}$$

$$V_2 = 10 \text{ ml}$$

Ditanya : Volume (V_1) yang dibutuhkan ?

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

$$100\text{ppm} \times V_1 = 100 \text{ ppm} \times 10 \text{ ml}$$

$$V_1 = 10 \text{ ml}$$

b. Perhitungan Absorbansi dari Linieritas Cahaya Warna RGB

- Linieritas

1. Intensitas Cahaya Warna Red

a) Konsentrasi 10 ppm

Diketahui : $I_0 = 169,333$

$$I = 105$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{169,333}{105}$$

$$A = 0,20755$$

b) Konsentrasi 20 ppm

Diketahui : $I_0 = 169,333$

$$I = 93,6667$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{169,333}{93,6667}$$

$$A = 0,2572$$

c) Konsentrasi 30 ppm

Diketahui : $I_0 = 169,333$

$$I = 82,3333$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{169,333}{82,3333}$$

$$A = 0,3132$$

d) Konsentrasi 40 ppm

Diketahui : $I_0 = 169,333$

$$I = 72,3333$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{169,333}{72,3333}$$

$$A = 0,3694$$

e) Konsentrasi 50 ppm

Diketahui : $I_0 = 169,333$

$$I = 63,66667$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{169,333}{63,6667}$$

$$A = 0,4248$$

f) Konsentrasi 60 ppm

Diketahui : $I_0 = 169,333$

$$I = 56,6667$$

Ditanya : Absorbansi (A) ?

$$\begin{aligned}\text{Jawab} & : A = \log \frac{I_0}{I} \\ & A = \log \frac{169,333}{56,6667} \\ & A = 0,4754\end{aligned}$$

g) Konsentrasi 70 ppm

$$\begin{aligned}\text{Diketahui} & : I_0 = 169,333 \\ & I = 48,3333\end{aligned}$$

Ditanya : Absorbansi (A) ?

$$\begin{aligned}\text{Jawab} & : A = \log \frac{I_0}{I} \\ & A = \log \frac{169,333}{48,3333} \\ & A = 0,5445\end{aligned}$$

h) Konsentrasi 80 ppm

$$\begin{aligned}\text{Diketahui} & : I_0 = 169,333 \\ & I = 44\end{aligned}$$

Ditanya : Absorbansi (A) ?

$$\begin{aligned}\text{Jawab} & : A = \log \frac{I_0}{I} \\ & A = \log \frac{169,333}{44} \\ & A = 0,5853\end{aligned}$$

i) Konsentrasi 90 ppm

$$\begin{aligned}\text{Diketahui} & : I_0 = 169,333 \\ & I = 40,33333\end{aligned}$$

Ditanya : Absorbansi (A) ?

$$\begin{aligned}\text{Jawab} & : A = \log \frac{I_0}{I} \\ & A = \log \frac{169,333}{40,33333} \\ & A = 0,6231\end{aligned}$$

j) Konsentrasi 100 ppm

$$\begin{aligned}\text{Diketahui} & : I_0 = 169,333 \\ & I = 33,6667\end{aligned}$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab} : A = \log \frac{I_0}{I}$$

$$A = \log \frac{169,333}{33,6667}$$

$$A = 0,7015$$

2. Intensitas Cahaya Warna Green

a) Konsentrasi 10 ppm

Diketahui : $I_0 = 140$

$$I = 105,000$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{140}{105,000}$$

$$A = 0,125$$

b) Konsentrasi 20 ppm

Diketahui : $I_0 = 140$

$$I = 75,6667$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{140}{75,6667}$$

$$A = 0,26722$$

c) Konsentrasi 30 ppm

Diketahui : $I_0 = 140$

$$I = 73,3333$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{140}{73,3333}$$

$$A = 0,28083$$

d) Konsentrasi 40 ppm

Diketahui : $I_0 = 140$

$$I = 63,6667$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{140}{63,6667}$$

$$A = 0,34222$$

e) Konsentrasi 50 ppm

Diketahui : $I_0 = 140$

$$I = 58,3333$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{140}{58,3333}$$

$$A = 0,38021$$

f) Konsentrasi 60 ppm

Diketahui : $I_0 = 140$

$$I = 50$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{140}{50}$$

$$A = 0,44716$$

g) Konsentrasi 70 ppm

Diketahui : $I_0 = 140$

$$I = 44$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{140}{44}$$

$$A = 0,50268$$

h) Konsentrasi 80 ppm

Diketahui : $I_0 = 140$

$$I = 38,6667$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{140}{38,6667}$$

$$A = 0,55879$$

i) Konsentrasi 90 ppm

$$\text{Diketahui : } I_0 = 140$$

$$I = 31,6667$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab : } A = \log \frac{I_0}{I}$$

$$A = \log \frac{140}{31,6667}$$

$$A = 0,64553$$

j) Konsentrasi 100 ppm

$$\text{Diketahui : } I_0 = 140$$

$$I = 25$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab : } A = \log \frac{I_0}{I}$$

$$A = \log \frac{140}{25}$$

$$A = 0,74819$$

3. Intensitas Cahaya Warna Blue

a) Konsentrasi 10 ppm

$$\text{Diketahui : } I_0 = 152,6667$$

$$I = 124,000$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab : } A = \log \frac{I_0}{I}$$

$$A = \log \frac{152,6667}{124,000}$$

$$A = 0,090$$

b) Konsentrasi 20 ppm

$$\text{Diketahui : } I_0 = 152,6667$$

$$I = 89$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab : } A = \log \frac{I_0}{I}$$

$$A = \log \frac{152,6667}{89}$$

$$A = 0,234354$$

c) Konsentrasi 30 ppm

Diketahui : $I_0 = 152,6667$

$$I = 77$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{152,6667}{77}$$

$$A = 0,297253$$

d) Konsentrasi 40 ppm

Diketahui : $I_0 = 152,6667$

$$I = 66$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{152,6667}{66}$$

$$A = 0,3642$$

e) Konsentrasi 50 ppm

Diketahui : $I_0 = 152,6667$

$$I = 52$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{152,6667}{52}$$

$$A = 0,467741$$

f) Konsentrasi 60 ppm

Diketahui : $I_0 = 152,6667$

$$I = 47,33333$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{152,6667}{47,33333}$$

$$A = 0,508577$$

g) Konsentrasi 70 ppm

$$\text{Diketahui : } I_0 = 152,6667$$

$$I = 44,66667$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab : } A = \log \frac{I_0}{I}$$

$$A = \log \frac{152,6667}{44,66667}$$

$$A = 0,533761$$

h) Konsentrasi 80 ppm

$$\text{Diketahui : } I_0 = 152,6667$$

$$I = 38,66667$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab : } A = \log \frac{I_0}{I}$$

$$A = \log \frac{152,6667}{38,66667}$$

$$A = 0,596407$$

i) Konsentrasi 90 ppm

$$\text{Diketahui : } I_0 = 152,6667$$

$$I = 29,66667$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab : } A = \log \frac{I_0}{I}$$

$$A = \log \frac{152,6667}{29,66667}$$

$$A = 0,711475$$

j) Konsentrasi 100 ppm

$$\text{Diketahui : } I_0 = 152,6667$$

$$I = 24,33333$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab : } A = \log \frac{I_0}{I}$$

$$A = \log \frac{152,6667}{24,33333}$$

$$A = 0,797543$$

- **Presisi**

Intensitas Cahaya Warna Red

a) Konsentrasi sampel 1 (30 ppm)

Diketahui : $I_0 = 161,6667$

$$I = 93$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{161,6667}{93}$$

$$A = 0,240137625$$

b) Konsentrasi sampel 2 (30 ppm)

Diketahui : $I_0 = 161,6667$

$$I = 92$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{161,6667}{92}$$

$$A = 0,244832746$$

c) Konsentrasi sampel 3 (30 ppm)

Diketahui : $I_0 = 161,6667$

$$I = 92$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{161,6667}{92}$$

$$A = 0,244832746$$

- **Akurasi**

a) Konsentrasi Sampel 1 (50 ppm)

Diketahui : $I_0 = 161,6667$

$$I = 69$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{161,6667}{69}$$

$$A = 0,369771483$$

b) Konsentrasi Sampel 2 (50 ppm)

Diketahui : $I_0 = 161,6667$

$$I = 69$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab} : A = \log \frac{I_0}{I}$$

$$A = \log \frac{161,6667}{69}$$

$$A = 0,369771483$$

c) Konsentrasi Sampel 3 (50 ppm)

Diketahui : $I_0 = 161,6667$

$$I = 65$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab} : A = \log \frac{I_0}{I}$$

$$A = \log \frac{161,6667}{65}$$

$$A = 0,395707217$$

c. Perhitungan Validasi Metode Secara Pencitraan Digital

- **Linieritas**

Persamaan Regresi Linier

$$y = 0.0054x + 0.1521$$

$$r^2 = 0,9978$$

Regression Statistics :

Multiple R : 0.997891

Annova $\rightarrow \rho - value$: 6.16806E-12

$$\alpha : 0,01$$

$$\rightarrow \rho - value < \alpha \text{ (linier)}$$

- **Presisi**

1. Perhitungan Konsentrasi Sampel

a) Konsentrasi sampel 1 (30 ppm)

Diketahui : $y = 0.0054x + 0.1521$

Absorbansi = 0,309664

Ditanya : Konsentrasi (x) ?

Jawab : $y = 0.0054x + 0.1521$

$$0,309664 = 0.0054x + 0.1521$$

$$x = \frac{0,309664 - 0,1521}{0,0054}$$

$$x = 29,17851852 \text{ ppm}$$

b) Konsentrasi sampel 2 (30 ppm)

Diketahui : $y = 0.0054x + 0.1521$

Absorbansi = 0,314928

Ditanya : Konsentrasi (x) ?

Jawab : $y = 0.0054x + 0.1521$

$$0,314928 = 0.0054x + 0.1521$$

$$x = \frac{0,314928 - 0,1521}{0,0054}$$

$$x = 30,15333 \text{ ppm}$$

c) Konsentrasi sampel 3 (30 ppm)

Diketahui : $y = 0.0054x + 0.1521$

Absorbansi = 0,314928

Ditanya : Konsentrasi (x) ?

Jawab : $y = 0.0054x + 0.1521$

$$0,314928 = 0.0054x + 0.1521$$

$$x = \frac{0,314928 - 0,1521}{0,0054}$$

$$x = 30,15333 \text{ ppm}$$

2. Perhitungan Kadar % Sampel

a) % Kadar Sampel 1

Diketahui : Konsentrasi Awal = 30 ppm

Konsentrasi Akhir = 29,1785 ppm

Ditanya : % Kadar Sampel 1?

Jawab : % Kadar = $\frac{\text{Konsentrasi Akhir}}{\text{Konsentrasi Awal}} \times 100\%$

$$\% \text{ Kadar} = \frac{29,1785 \text{ ppm}}{30 \text{ ppm}} \times 100\%$$

$$\% \text{ Kadar} = 97,2616 \%$$

b) % Kadar Sampel 2

Diketahui : Konsentrasi Awal = 30 ppm

Konsentrasi Akhir = 30,15333 ppm

Ditanya : % Kadar Sampel 2?

$$\text{Jawab} : \% \text{ Kadar} = \frac{\text{Konsentrasi Akhir}}{\text{Konsentrasi Awal}} \times 100\%$$

$$\% \text{ Kadar} = \frac{30,15333 \text{ ppm}}{30 \text{ ppm}} \times 100\%$$

$$\% \text{ Kadar} = 100,511 \%$$

c) % Kadar Sampel 3

Diketahui : Konsentrasi Awal = 30 ppm

Konsentrasi Akhir = 30,15333 ppm

Ditanya : % Kadar Sampel 3?

$$\text{Jawab} : \% \text{ Kadar} = \frac{\text{Konsentrasi Akhir}}{\text{Konsentrasi Awal}} \times 100\%$$

$$\% \text{ Kadar} = \frac{30,15333 \text{ ppm}}{30 \text{ ppm}} \times 100\%$$

$$\% \text{ Kadar} = 100,511\%$$

d) Rata-Rata % Kadar Sampel

$$\text{Rata - Rata} = \frac{99,2616 \% + 100,511\% + 100,511\%}{3}$$

$$\text{Rata - Rata} = 99,4278\%$$

3. Perhitungan Standar Deviasi dan RSD

a) Standar Deviasi (SD)

Diketahui : % Kadar Sampel 1 = 99,2616%

% Kadar Sampel 2 = 100,511

% Kadar Sampel 3 = 100,511%

Ditanya : Standar Deviasi ?

$$\text{Jawab} : \text{SD} = \sqrt{\frac{\sum_{i=1}^{n-2} (x_i - \bar{x})^2}{n-1}}$$

$$SD = \sqrt{\frac{(99,2616\% - 99,4278\%) + (100,511\% - 99,4278\%) + (100,511\% - 99,4278\%)}{3 - 1}}$$

$$SD = 1,879 \%$$

b) RSD

Diketahui : SD = 1,879 %

% Kadar x = 99,4278%

Ditanya : RSD ?

Jawab : $RSD = \frac{SD}{x \%Kadar} \times 100\%$

$$RSD = \frac{1,879\%}{99,4278\%} \times 100\%$$

$$RSD = 1,8898\%$$

- Akurasi

1. Perhitungan Konsentrasi Sampel

a) Konsentrasi sampel 1 (50 ppm)

Diketahui : $y = 0.0054x + 0.1521$

Absorbansi = 0,422562

Ditanya : Konsentrasi (x) ?

Jawab : $y = 0.0054x + 0.1521$

$$0,422562 = 0.0054x + 0.1521$$

$$x = \frac{0,422562 - 0,1521}{0,0054}$$

$$x = 50,0855 \text{ ppm}$$

b) Konsentrasi sampel 2 (50 ppm)

Diketahui : $y = 0.0054x + 0.1521$

Absorbansi = 0,422562

Ditanya : Konsentrasi (x) ?

Jawab : $y = 0.0054x + 0.1521$

$$0,422562 = 0.0054x + 0.1521$$

$$x = \frac{0,422562 - 0,1521}{0,0054}$$

$$x = 50,0855 \text{ ppm}$$

c) Konsentrasi sampel 3 (50 ppm)

Diketahui : $y = 0.0054x + 0.1521$

$$\text{Absorbansi} = 0,429401$$

Ditanya : Konsentrasi (x) ?

$$\text{Jawab} : y = 0.0054x + 0.1521$$

$$0,429401 = 0.0054x + 0.1521$$

$$x = \frac{0,429401 - 0,1521}{0,0054}$$

$$x = 51,3520 \text{ ppm}$$

d) Rata-Rata Konsentrasi Sampel

$$\text{Rata - Rata} = \frac{50,0855 + 50,0855 + 51,3520}{3}$$

$$\text{Rata - Rata} = 50,50766 \text{ ppm}$$

2. Perhitungan % Recovery

Diketahui : M teoritis (C_A) = 50 ppm

M Pembacaan (C_S) = 50,50766 ppm

Ditanya : % Recovery ?

$$\text{Jawab} : \% \text{ Recovery} = \frac{C_A}{C_S} \times 100\%$$

$$\% \text{ Recovery} = \frac{50,50766 \text{ ppm}}{50 \text{ ppm}} \times 100\%$$

$$\% \text{ Recovery} = 101,01532 \%$$

d. Uji Daya Simpan Larutan Tes Kit Yodium

Intensitas Cahaya Warna Red

- Absorbansi waktu 0 menit (10 ppm)

Diketahui : $I_0 = 169,333$

$$I = 105$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab} : A = \log \frac{I_0}{I}$$

$$A = \log \frac{169,333}{105}$$

$$A = 0,20755$$

- Absorbansi waktu 30 menit (10 ppm)

Diketahui : $I_0 = 169,333$

$$I = 106$$

Ditanya : Absorbansi (A) ?

$$\begin{aligned}\text{Jawab} & : A = \log \frac{I_0}{I} \\ & A = \log \frac{169,333}{106} \\ & A = 0.2034357\end{aligned}$$

- Absorbansi waktu 60 menit (10 ppm)

$$\begin{aligned}\text{Diketahui} & : I_0 = 169,333 \\ & I = 110\end{aligned}$$

Ditanya : Absorbansi (A) ?

$$\begin{aligned}\text{Jawab} & : A = \log \frac{I_0}{I} \\ & A = \log \frac{169,333}{110} \\ & A = 0.187348\end{aligned}$$

- Absorbansi waktu 90 menit (10 ppm)

$$\begin{aligned}\text{Diketahui} & : I_0 = 169,333 \\ & I = 111\end{aligned}$$

Ditanya : Absorbansi (A) ?

$$\begin{aligned}\text{Jawab} & : A = \log \frac{I_0}{I} \\ & A = \log \frac{169,333}{111} \\ & A = 0.183418\end{aligned}$$

- Absorbansi waktu 120 menit (10 ppm)

$$\begin{aligned}\text{Diketahui} & : I_0 = 169,333 \\ & I = 112\end{aligned}$$

Ditanya : Absorbansi (A) ?

$$\begin{aligned}\text{Jawab} & : A = \log \frac{I_0}{I} \\ & A = \log \frac{169,333}{112} \\ & A = 0.179523\end{aligned}$$

e. Uji Yodium Pada Sampel Garam

- Sampel Garam Merk A
 1. Absorbansi Larutan Sampel Garam
Intensitas Cahaya Warna Red
 - a) Replikasi 1

Diketahui : $I_0 = 169,333$

$$I = 87$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{169,333}{87}$$

$$A = 0.289222$$

b) Replikasi 2

Diketahui : $I_0 = 169,333$

$$I = 90$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{169,333}{90}$$

$$A = 0.274499$$

c) Replikasi 3

Diketahui : $I_0 = 169,333$

$$I = 90$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{169,333}{90}$$

$$A = 0.274499$$

d) Rata-Rata Absorbansi Sampel Garam Merk A

Diketahui : $A_1 = 0.289222$

$$A_2 = 0.274499$$

$$A_3 = 0.274499$$

Ditanya : Rata-Rata Absorbansi Sampel Garam ?

Jawab : Rata – Rata = $\frac{A_1 + A_2 + A_3}{n}$

$$\text{Rata – Rata} = \frac{0,289+0,274+0,274}{3}$$

$$\text{Rata – Rata} = 0,279$$

2. Konsentrasi Sampel Garam Merk A

$$\text{Diketahui : } y = 0.0054x + 0.1521$$

$$\text{Absorbansi} = 0,279$$

Ditanya : Konsentrasi (x) ?

$$\text{Jawab : } y = 0.0054x + 0.1521$$

$$0,279 = 0.0054x + 0.1521$$

$$x = \frac{0,279 - 0,1521}{0,0054}$$

$$x = 23,5 \text{ ppm}$$

- Sampel Garam Merk B

1. Absorbansi Larutan Sampel Garam

Intensitas Cahaya Warna Red

a) Replikasi 1

$$\text{Diketahui : } I_0 = 169,333$$

$$I = 97$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab : } A = \log \frac{I_0}{I}$$

$$A = \log \frac{169,333}{97}$$

$$A = 0.24197$$

b) Replikasi 2

$$\text{Diketahui : } I_0 = 169,333$$

$$I = 97$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab : } A = \log \frac{I_0}{I}$$

$$A = \log \frac{169,333}{97}$$

$$A = 0.24197$$

c) Replikasi 3

$$\text{Diketahui : } I_0 = 169,333$$

$$I = 97$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab : } A = \log \frac{I_0}{I}$$

$$A = \log \frac{169,333}{97}$$

$$A = 0.24197$$

d) Rata-Rata Absorbansi Sampel Garam Merk A

Diketahui : $A_1 = 0.24197$

$$A_2 = 0.24197$$

$$A_3 = 0.24197$$

Ditanya : Rata-Rata Absorbansi Sampel Garam ?

Jawab : Rata – Rata = $\frac{A_1+A_2+A_3}{n}$

$$\text{Rata – Rata} = \frac{0,242+0,242+0,242}{3}$$

$$\text{Rata – Rata} = 0,242$$

2. Konsentrasi Sampel Garam Merk A

Diketahui : $y = 0.0054x + 0.1521$

$$\text{Absorbansi} = 0,242$$

Ditanya : Konsentrasi (x) ?

Jawab : $y = 0.0054x + 0.1521$

$$0,242 = 0.0054x + 0.1521$$

$$x = \frac{0,242-0,1521}{0,0054}$$

$$x = 16,6481 \text{ ppm}$$

• Sampel Garam Merk C

1. Absorbansi Larutan Sampel Garam

Intensitas Cahaya Warna Red

a) Replikasi 1

Diketahui : $I_0 = 169,333$

$$I = 74$$

Ditanya : Absorbansi (A) ?

Jawab : $A = \log \frac{I_0}{I}$

$$A = \log \frac{169,333}{74}$$

$$A = 0.35951$$

b) Replikasi 2

Diketahui : $I_0 = 169,333$

$$I = 75$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab} : A = \log \frac{I_0}{I}$$

$$A = \log \frac{169,333}{75}$$

$$A = 0.35368$$

c) Replikasi 3

Diketahui : $I_0 = 169,333$

$$I = 74$$

Ditanya : Absorbansi (A) ?

$$\text{Jawab} : A = \log \frac{I_0}{I}$$

$$A = \log \frac{169,333}{74}$$

$$A = 0.35951$$

d) Rata-Rata Absorbansi Sampel Garam Merk A

Diketahui : $A_1 = 0.35951$

$$A_2 = 0.35368$$

$$A_3 = 0.35951$$

Ditanya : Rata-Rata Absorbansi Sampel Garam ?

$$\text{Jawab} : \text{Rata - Rata} = \frac{A_1 + A_2 + A_3}{n}$$

$$\text{Rata - Rata} = \frac{0,359 + 0,353 + 0,359}{3}$$

$$\text{Rata - Rata} = 0,357$$

2. Konsentrasi Sampel Garam Merk A

Diketahui : $y = 0.0054x + 0.1521$

$$\text{Absorbansi} = 0,357$$

Ditanya : Konsentrasi (x) ?

Jawab : $y = 0.0054x + 0.1521$

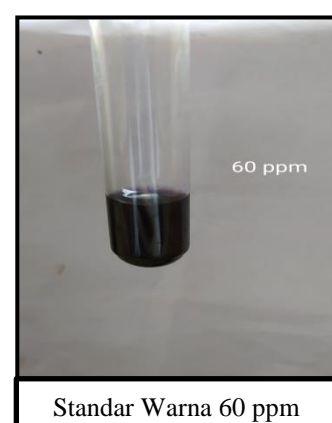
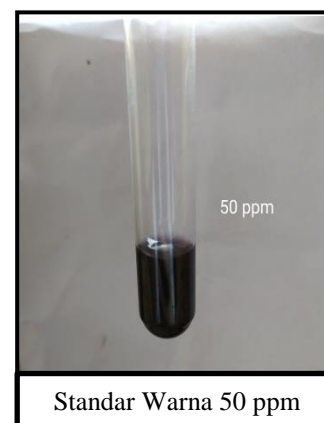
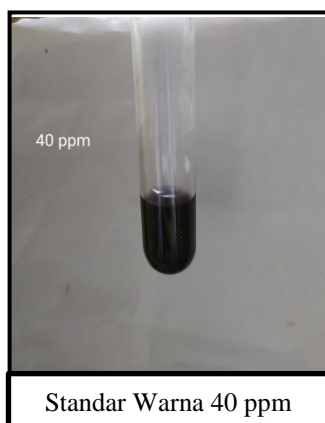
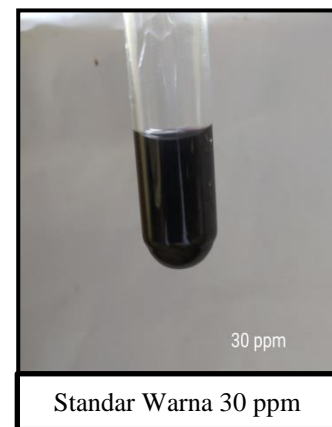
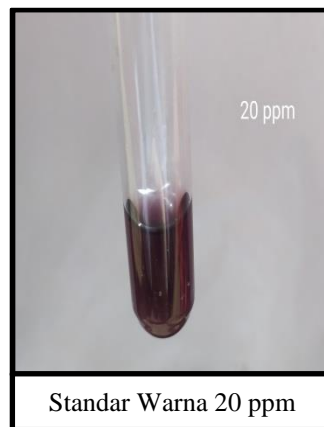
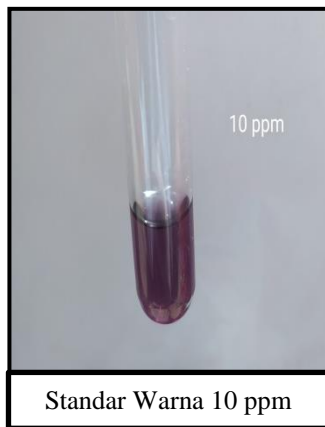
$$0,357 = 0.0054x + 0.1521$$

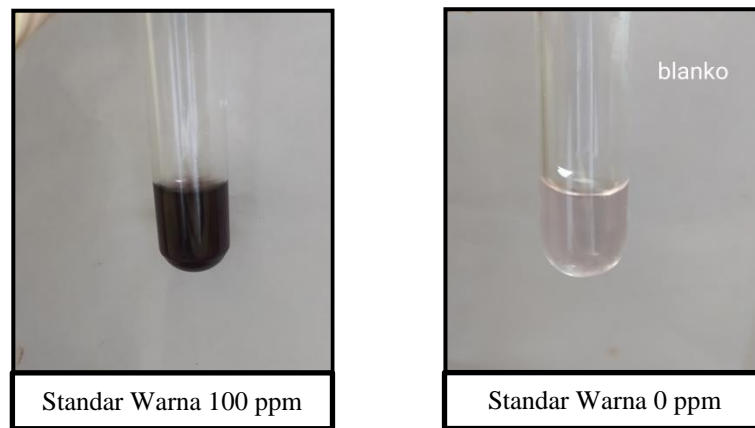
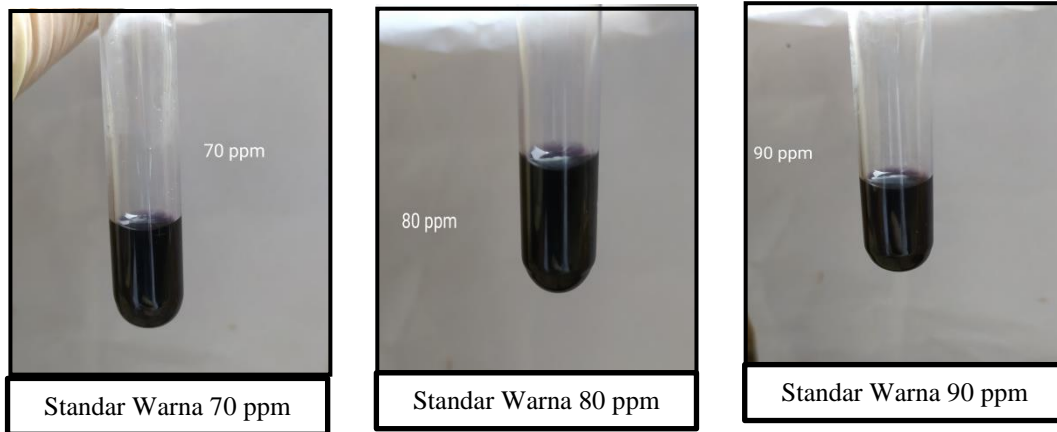
$$x = \frac{0,242 - 0,1521}{0,357}$$

$$x = 37,9444 \text{ ppm}$$

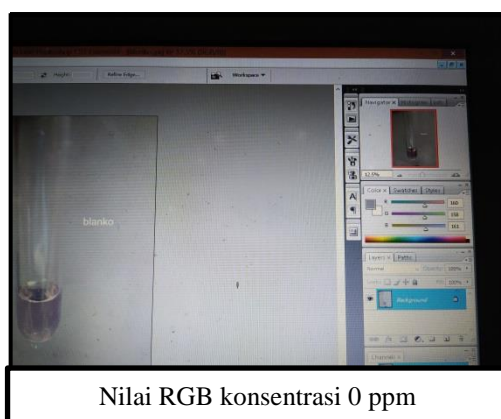
4. Dokumentasi Penelitian

- Standar Warna KIO_3 10-100 ppm





1, Nilai RGB Replikasi 1





Nilai RGB konsentrasi 20 ppm



Nilai RGB konsentrasi 30 ppm



Nilai RGB konsentrasi 40 ppm



Nilai RGB konsentrasi 50 ppm



Nilai RGB konsentrasi 60 ppm



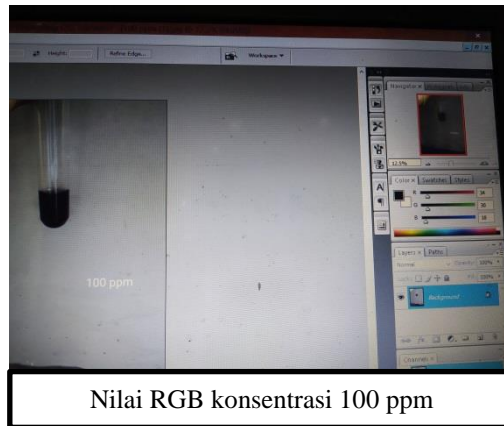
Nilai RGB konsentrasi 70 ppm



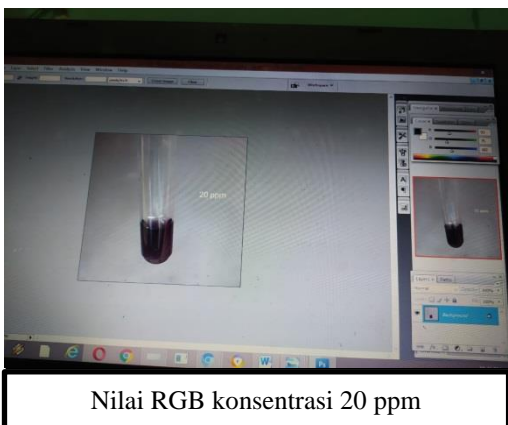
Nilai RGB konsentrasi 80 ppm



Nilai RGB konsentrasi 90 ppm



2. Nilai RGB Replikasi 2





Nilai RGB konsentrasi 60 ppm



Nilai RGB konsentrasi 70 ppm



Nilai RGB konsentrasi 80 ppm

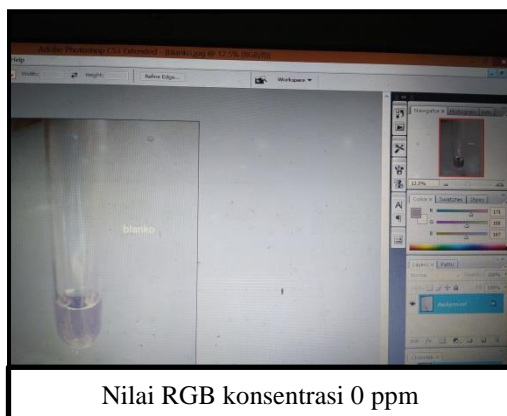


Nilai RGB konsentrasi 90 ppm



Nilai RGB konsentrasi 100 ppm

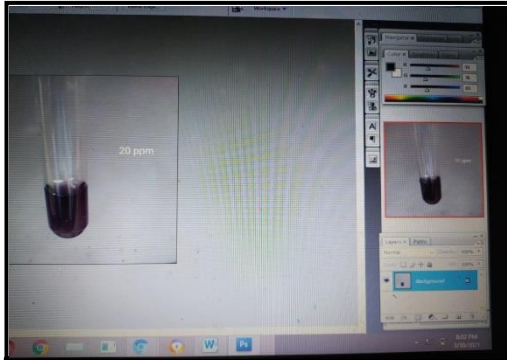
3. Nilai RGB Replikasi 3



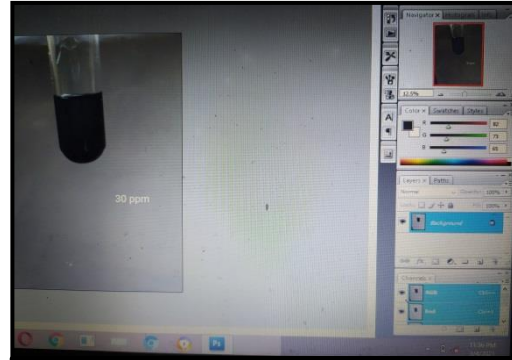
Nilai RGB konsentrasi 0 ppm



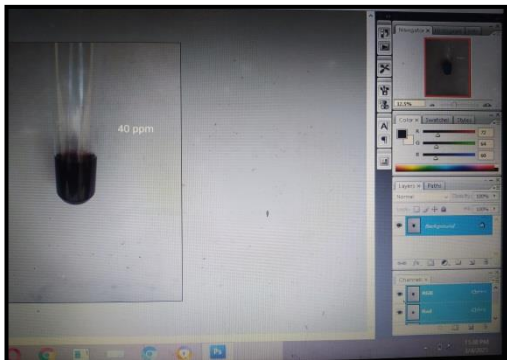
Nilai RGB konsentrasi 10 ppm



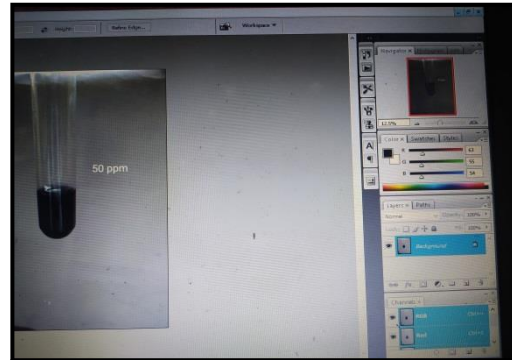
Nilai RGB konsentrasi 20 ppm



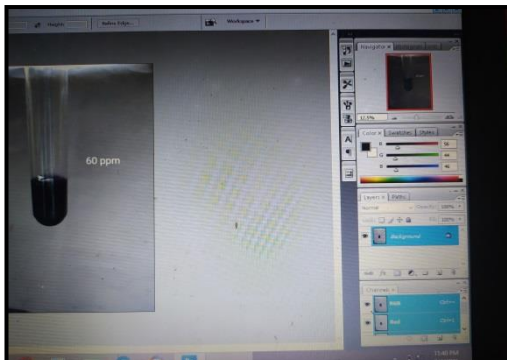
Nilai RGB konsentrasi 30 ppm



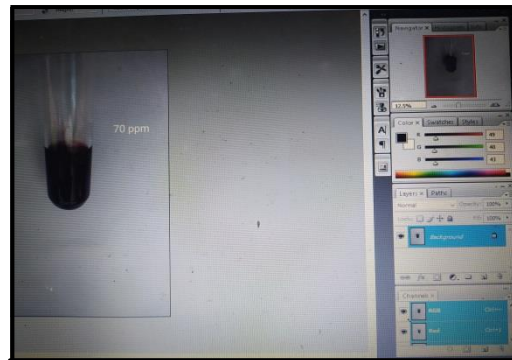
Nilai RGB konsentrasi 40 ppm



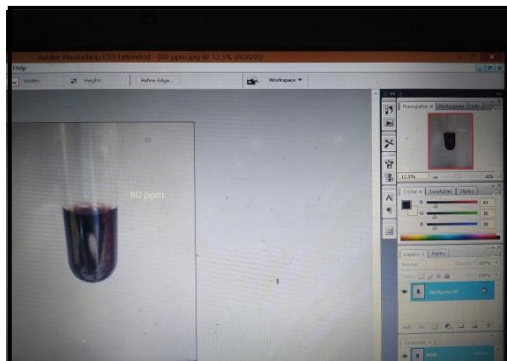
Nilai RGB konsentrasi 50 ppm



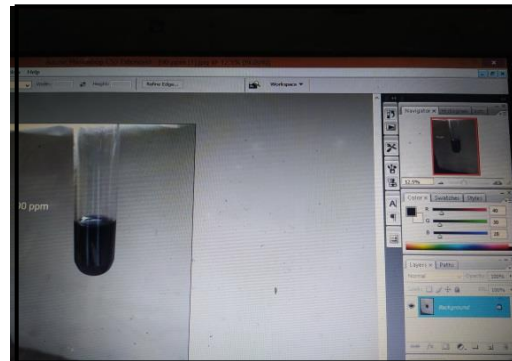
Nilai RGB konsentrasi 60 ppm



Nilai RGB konsentrasi 70 ppm



Nilai RGB konsentrasi 80 ppm



Nilai RGB konsentrasi 90 ppm



Nilai RGB konsentrasi 100 ppm

- **Presisi dan Akurasi**



Presisi Konsentrasi 30 ppm



Akurasi Konsentrasi 50 ppm

- **Uji Daya Simpan Tes Kit Yodium**



Nilai RGB menit ke 0



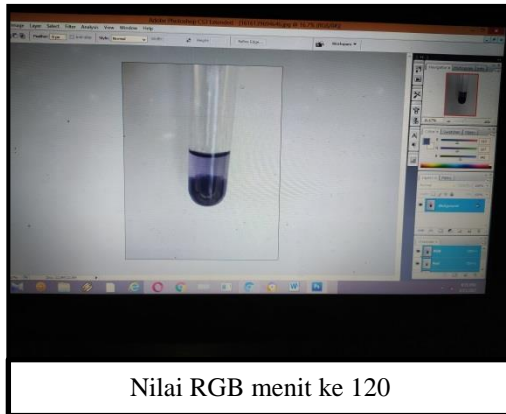
Nilai RGB menit ke 30



Nilai RGB menit ke 60



Nilai RGB menit ke 90



- Uji Sampel Garam dengan Tes Kit Yodium



