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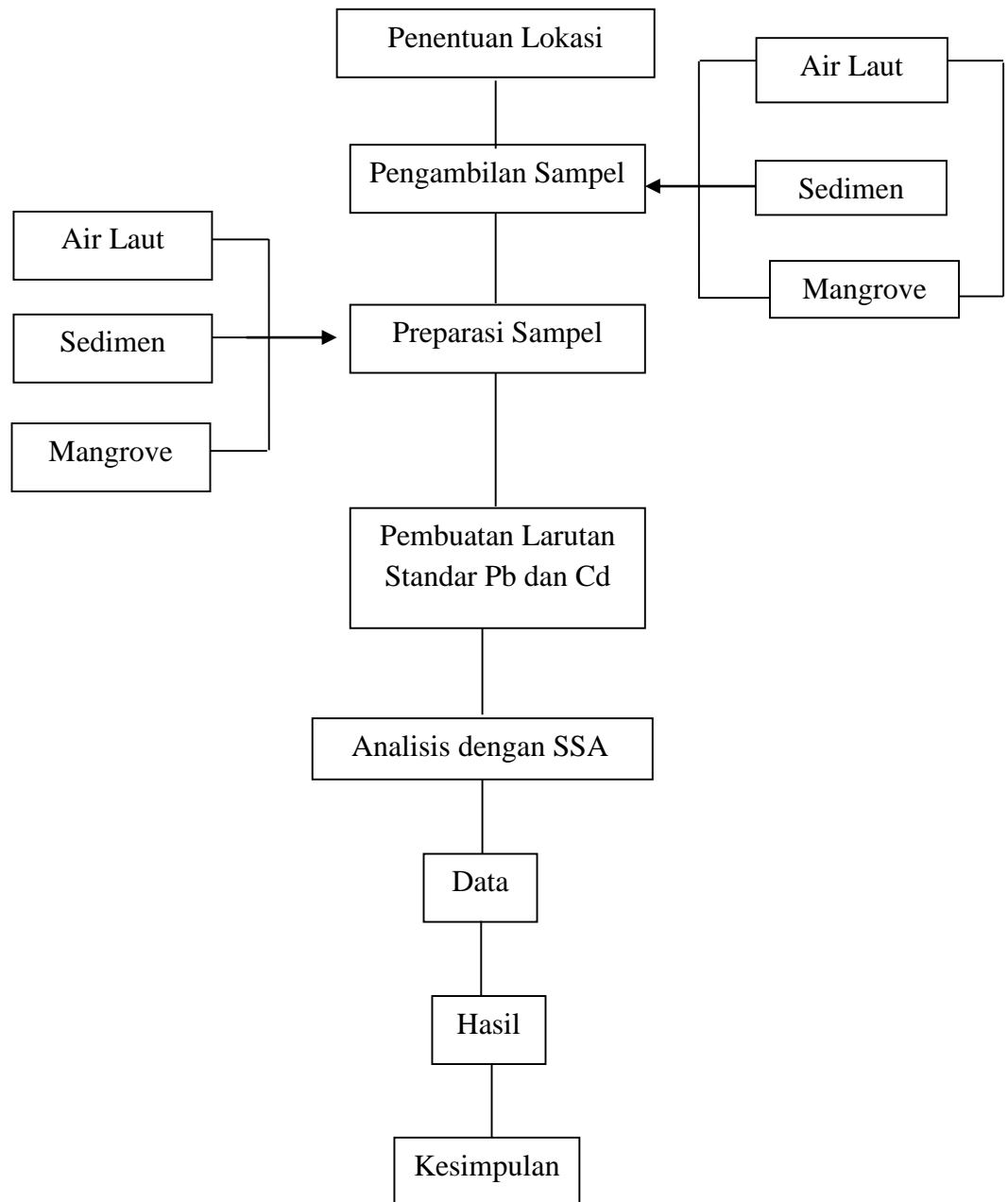
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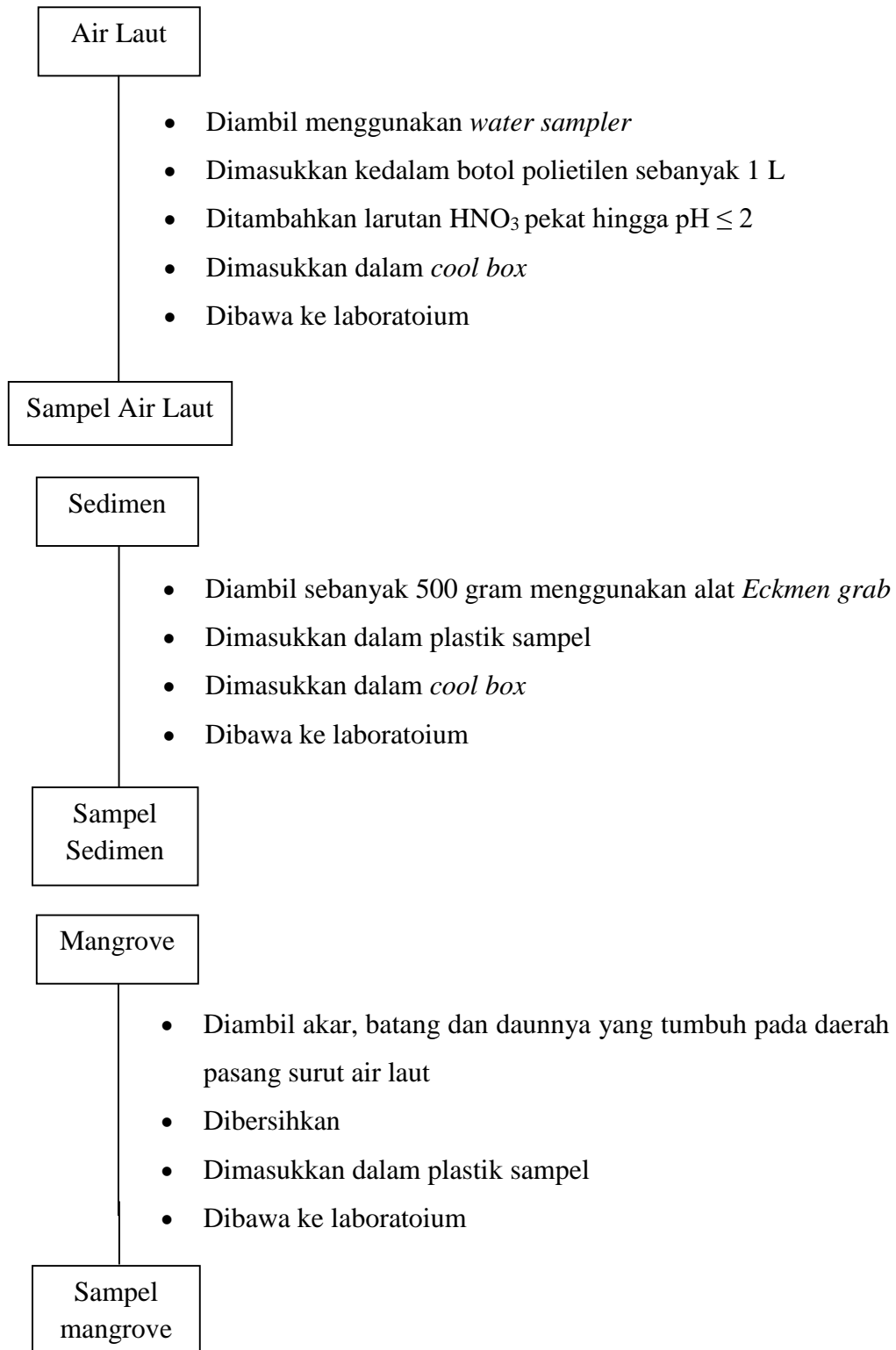
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Lampiran 1. Skema Kerja Penelitian



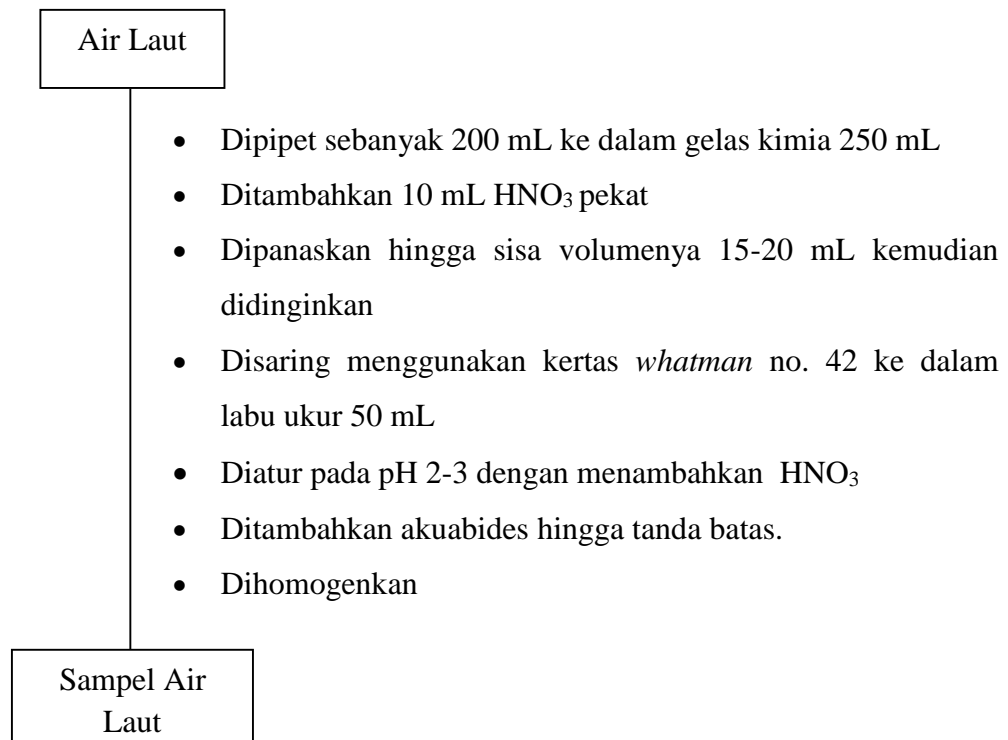
Lampiran 2. Bagan Kerja

1. Pengambilan Sampel

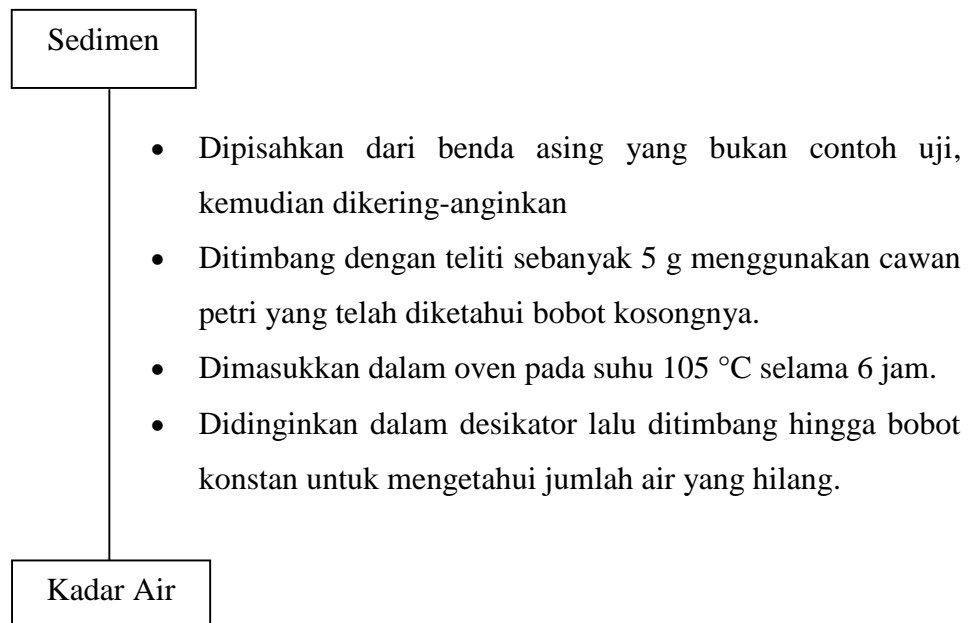


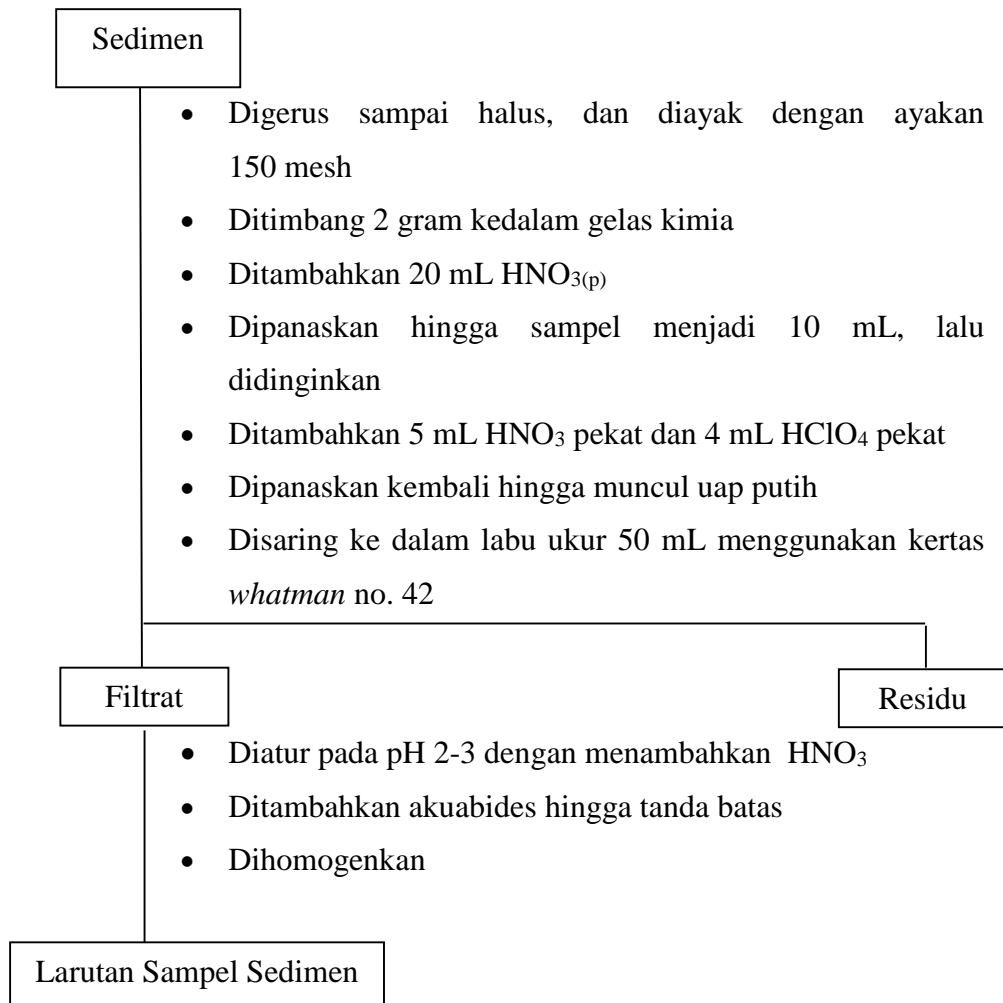
2. Preparasi Sampel

2.1 Preparasi Sampel Air Laut (SNI 6989.8:2009 dan SNI 6989.16:2009)

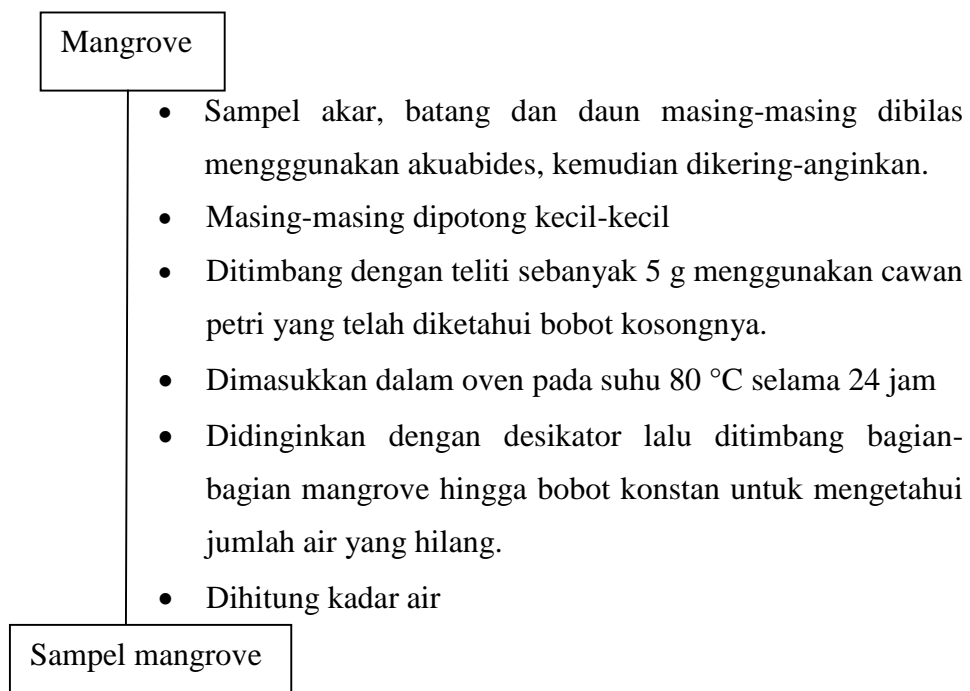


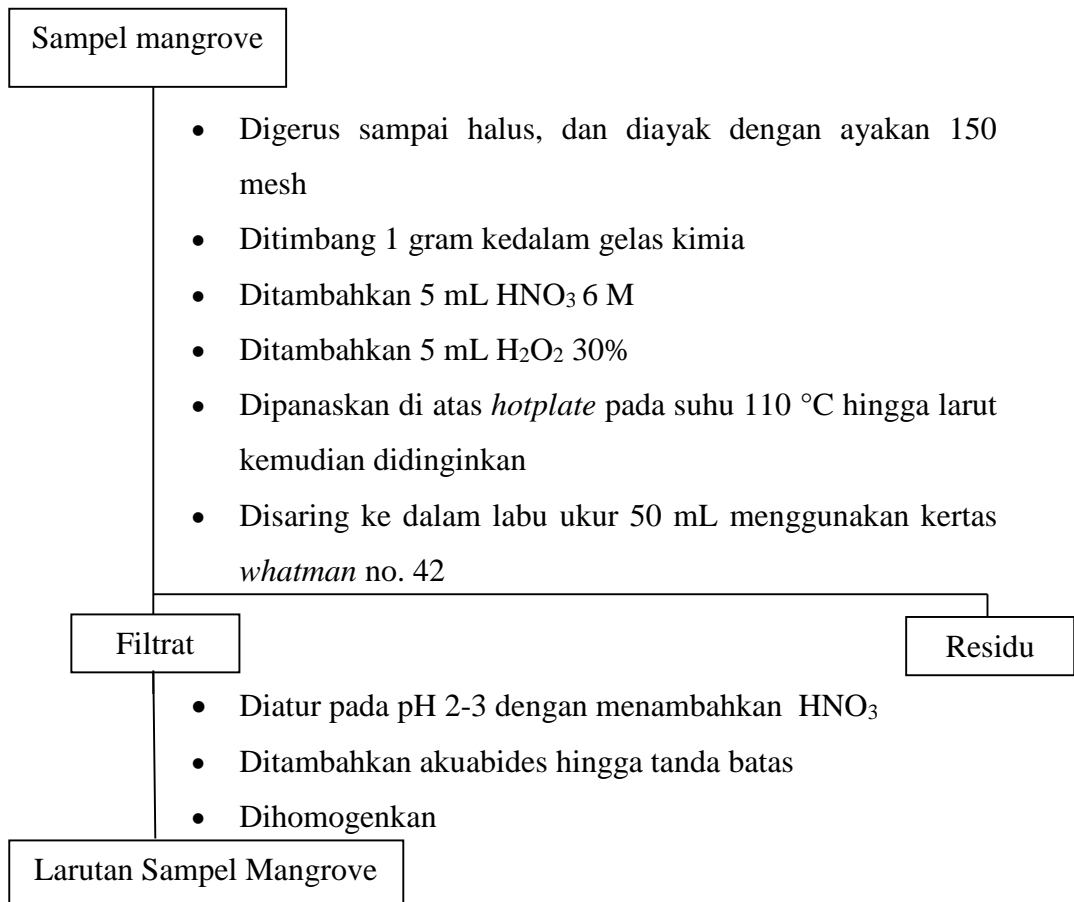
2.2 Preparasi Sampel Sedimen (SNI 06-6992.3:2004 dan SNI 06.6992.4:2004)





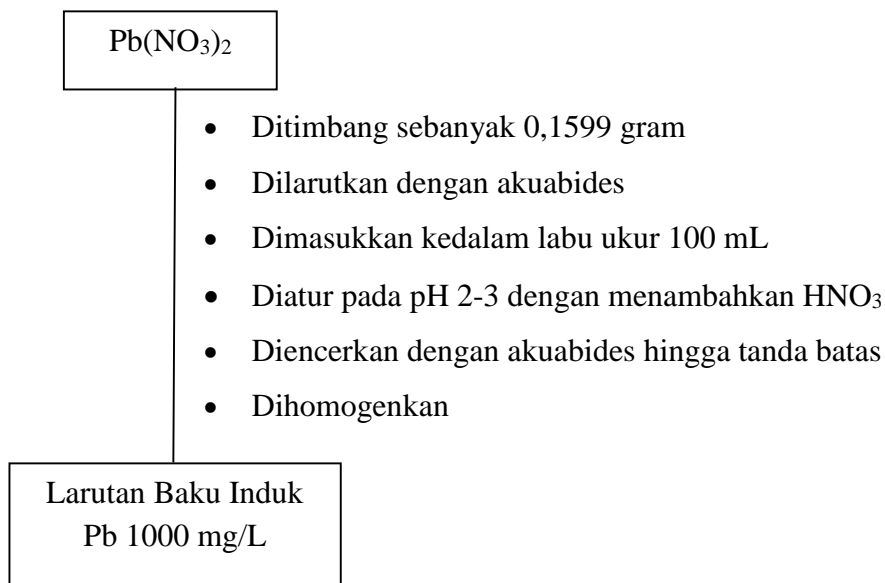
2.3 Preparasi Sampel Mangrove (Rachmawati dkk., 2018)



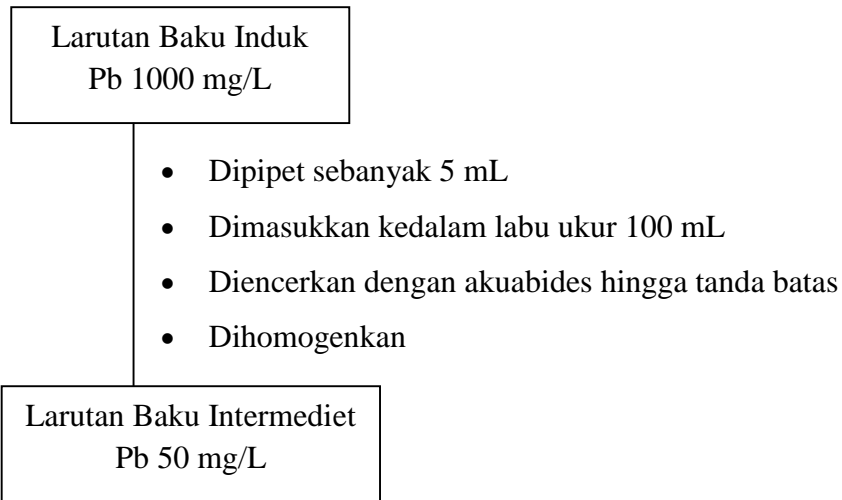


3. Pembuatan Larutan Baku Pb

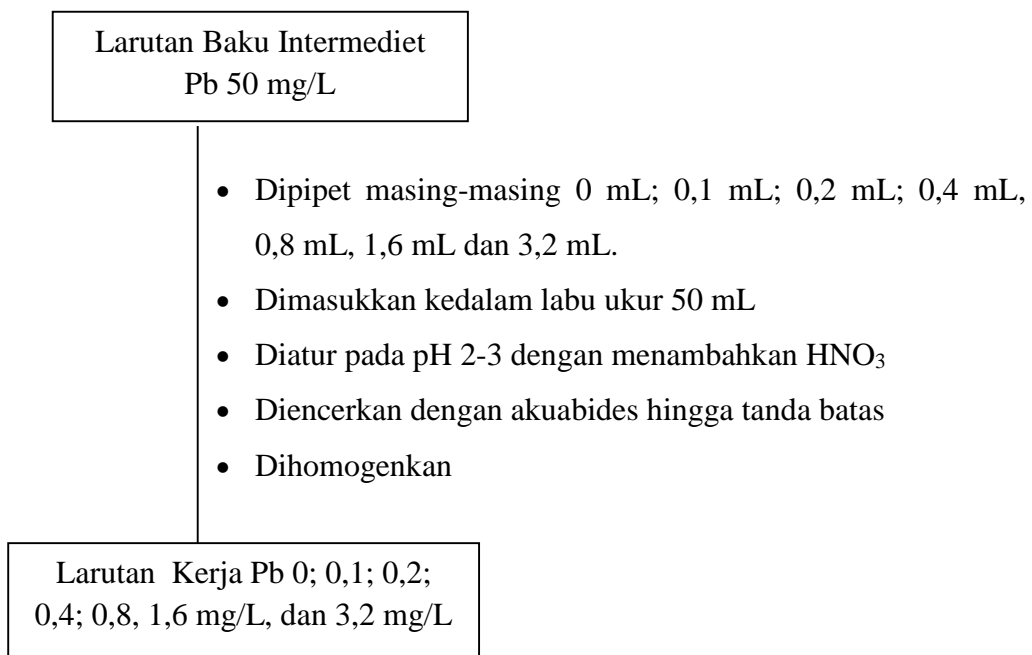
3.1 Pembuatan Larutan Baku Induk Pb 1000 mg/L



3.2 Pembuatan Larutan Baku Intermediet Pb 50 mg/L

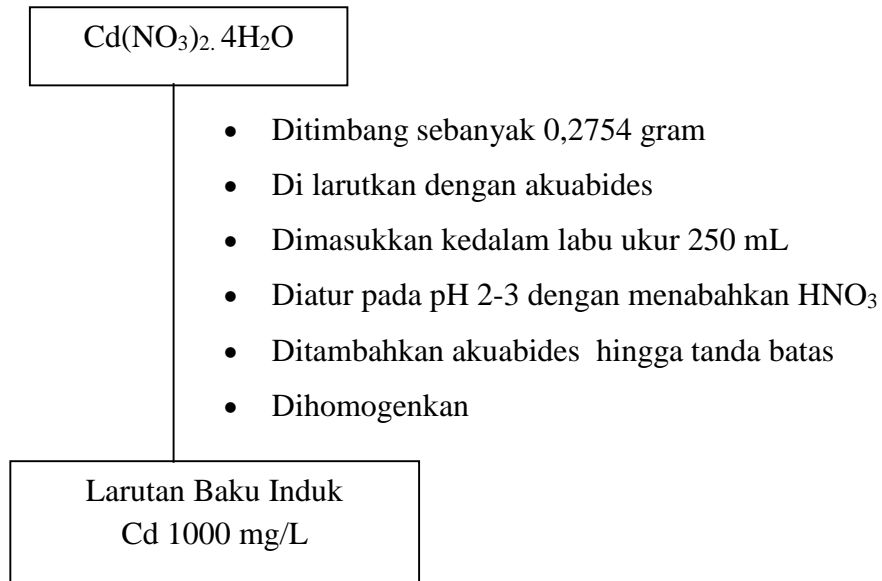


3.3 Pembuatan Larutan Kerja Pb untuk Sampel Air Laut, Sedimen, dan Mangrove

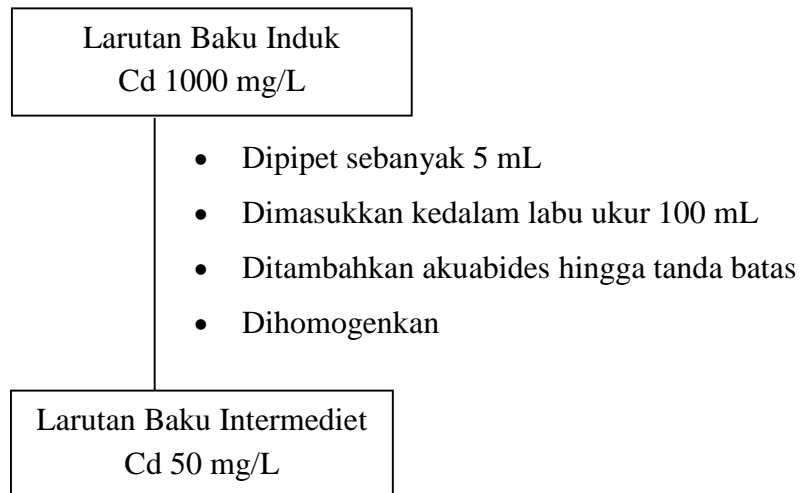


4. Pembuatan Larutan Baku Cd

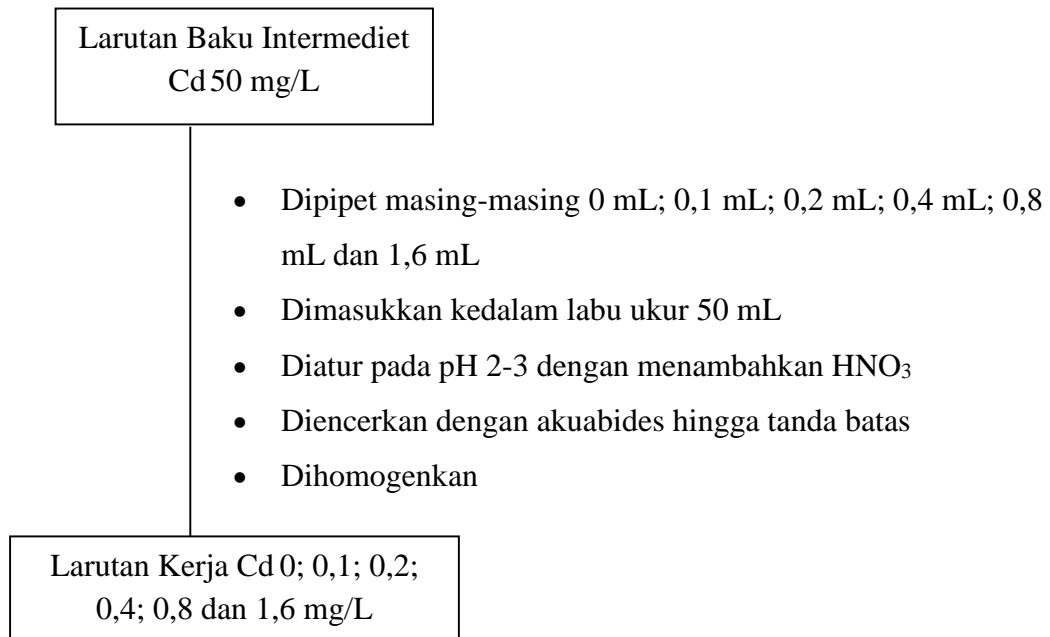
4.1 Pembuatan Larutan Induk Cd 1000 mg/L



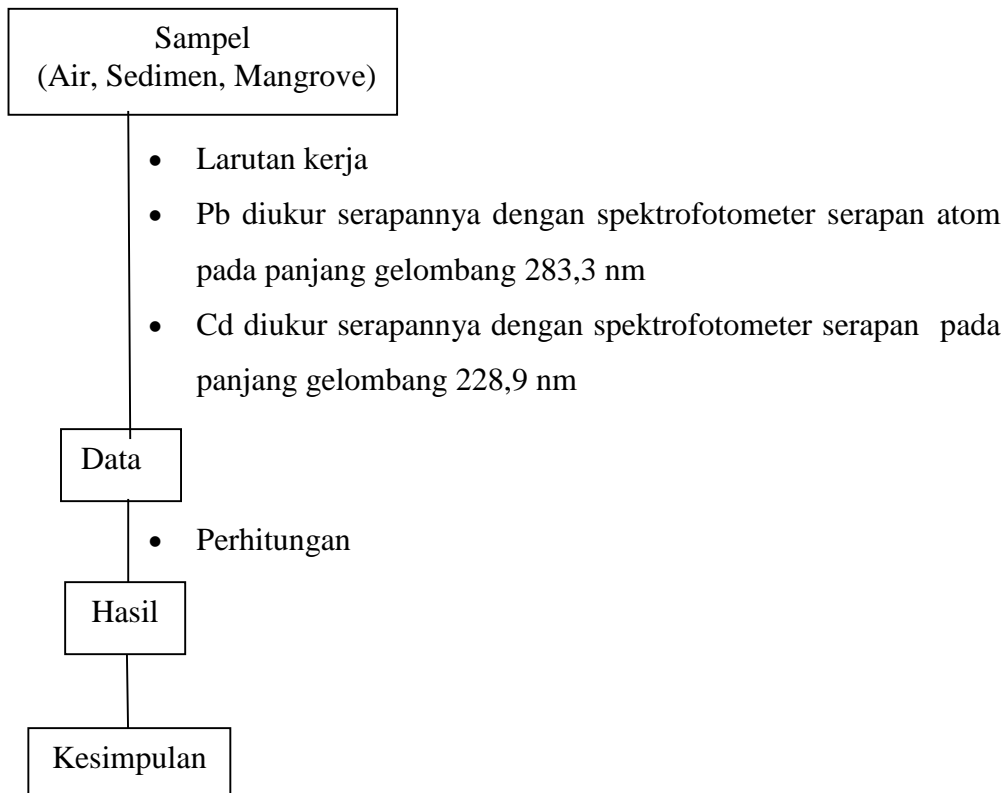
4.2 Pembuatan Larutan Baku Intermediet Cd 50 mg/L



4.3 Pembuatan Larutan Kerja Cd untuk Sampel Air Laut, Sedimen, dan Mangrove



5. Analisis Pb dan Cd dengan Spektrofotometer Serapan Atom



Lampiran 3. Perhitungan

A. Perhitungan Pembuatan Larutan Baku Pb

1. Pembuatan Larutan Baku Induk Pb 1000 mg/L

$$\text{ppm} = \frac{\text{Ar Pb}}{\text{Pb(NO}_3)_2} \times \frac{\text{massa}}{V}$$

$$1000 \text{ mg/L} = \frac{207 \text{ g/mol}}{331 \text{ g/mol}} \times \frac{\text{massa}}{0,1 \text{ L}}$$

$$\text{massa} = 159,90 \text{ mg}$$

$$\text{massa} = 0,1599 \text{ g}$$

2. Pembuatan Larutan Baku Intermediet Pb 50 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 1000 \text{ mg/L} = 100 \text{ mL} \times 50 \text{ mg/L}$$

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

3. Pembuatan Deret Standar Pb

Konsentrasi 0,1 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 50 \text{ mg/L} = 50 \text{ mL} \times 0,1 \text{ mg/L}$$

$$V_1 = 0,1 \text{ mL}$$

Konsentrasi 0,2 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 50 \text{ mg/L} = 50 \text{ mL} \times 0,2 \text{ mg/L}$$

$$V_1 = 0,2 \text{ mL}$$

Konsentrasi 0,4 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 50 \text{ mg/L} = 50 \text{ mL} \times 0,4 \text{ mg/L}$$

$$V_1 = 0,4 \text{ mL}$$

Konsentrasi 0,8 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 50 \text{ mg/L} = 50 \text{ mL} \times 0,8 \text{ mg/L}$$

$$V_1 = 0,8 \text{ mL}$$

Konsentrasi 1,6 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 50 \text{ mg/L} = 50 \text{ mL} \times 1,6 \text{ mg/L}$$

$$V_1 = 1,6 \text{ mL}$$

Konsentrasi 3,2 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 50 \text{ mg/L} = 50 \text{ mL} \times 3,2 \text{ mg/L}$$

$$V_1 = 3,2 \text{ mL}$$

B. Perhitungan Pembuatan Larutan Baku Cd

1. Pembuatan Larutan Baku Induk Cd 1000 mg/L

$$\text{ppm} = \frac{\text{Ar Cd}}{\text{Cd(NO}_3)_2 \cdot 4\text{H}_2\text{O}} \times \frac{\text{massa}}{V}$$

$$1000 \text{ mg/L} = \frac{112 \text{ g/mol}}{308 \text{ g/mol}} \times \frac{\text{massa}}{0,1 \text{ L}}$$

$$\text{massa} = 275,41 \text{ mg}$$

$$\text{massa} = 0,2754 \text{ g}$$

2. Pembuatan Larutan Baku Intermediet Cd 50 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 1000 \text{ mg/L} = 100 \text{ mL} \times 50 \text{ mg/L}$$

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

3. Pembuatan Deret Standar Cd

Konsentrasi 0,1 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 50 \text{ mg/L} = 50 \text{ mL} \times 0,1 \text{ mg/L}$$

$$V_1 = 0,1 \text{ mL}$$

Konsentrasi 0,2 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 50 \text{ mg/L} = 50 \text{ mL} \times 0,2 \text{ mg/L}$$

$$V_1 = 0,2 \text{ mL}$$

Konsentrasi 0,4 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 50 \text{ mg/L} = 50 \text{ mL} \times 0,4 \text{ mg/L}$$

$$V_1 = 0,4 \text{ mL}$$

Konsentrasi 0,8 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 50 \text{ mg/L} = 50 \text{ mL} \times 0,8 \text{ mg/L}$$

$$V_1 = 0,8 \text{ mL}$$

Konsentrasi 1,6 mg/L

$$V_1 \times C_1 = V_2 \times C_2$$

$$V_1 \times 50 \text{ mg/L} = 50 \text{ mL} \times 1,6 \text{ mg/L}$$

$$V_1 = 1,6 \text{ mL}$$

A. Perhitungan Kadar Air pada Mangrove dan Sedimen

$$\text{Kadar Air (\%)} = \frac{W_1 - W_2}{W_1 - W_0} \times 100\%$$

Keterangan:

W_0 = bobot cawan petri kosong (g)

W_1 = bobot cawan petri + sampel sebelum pemanasan (g)

W_2 = bobot cawan petri + sampel setelah pemanasan (g)

1. Mangrove Titik 1

- Akar

$$\begin{aligned} \text{Kadar Air (\%) I} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(48,5508 - 45,2398) \text{ g}}{(48,5508 - 43,5459) \text{ g}} \times 100\% \\ &= 66,15\% \end{aligned}$$

$$\begin{aligned} \text{Kadar Air (\%) II} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(52,4314 - 48,9863) \text{ g}}{(52,4314 - 47,4229) \text{ g}} \times 100\% \\ &= 68,78\% \end{aligned}$$

$$\text{Kadar Air (\%) rata-rata} = \frac{(66,15 + 68,78) \%}{2} = 67,47\%$$

- Batang

$$\text{Kadar Air (\%) I} = \frac{W_1 - W_2}{W_1 - W_0} \times 100\%$$

$$= \frac{(51,2707 - 47,7348) \text{ g}}{(51,2707 - 46,2636) \text{ g}} \times 100\%$$

$$= 70,62\%$$

$$\text{Kadar Air (\%) II} = \frac{W_1 - W_2}{W_1 - W_0} \times 100\%$$

$$= \frac{(47,7523 - 44,32335) \text{ g}}{(47,7523 - 42,7425) \text{ g}} \times 100\%$$

$$= 68,44\%$$

$$\text{Kadar Air (\%) rata-rata} = \frac{(70,62 + 68,44) \%}{2} = 69,53\%$$

- **Daun**

$$\text{Kadar Air (\%) I} = \frac{W_1 - W_2}{W_1 - W_0} \times 100\%$$

$$= \frac{(53,6597 - 50,6225) \text{ g}}{(53,6597 - 48,6545) \text{ g}} \times 100\%$$

$$= 60,62\%$$

$$\text{Kadar Air (\%) II} = \frac{W_1 - W_2}{W_1 - W_0} \times 100\%$$

$$= \frac{(40,1394 - 37,1166) \text{ g}}{(38,1394 - 35,1332) \text{ g}} \times 100\%$$

$$= 60,38\%$$

$$\text{Kadar Air (\%) rata-rata} = \frac{(60,62 + 60,38) \%}{2} = 60,50\%$$

2. Mangrove Titik 2

- Akar

$$\begin{aligned}\text{Kadar Air (\%) I} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(44,5489 - 40,9104) \text{ g}}{(44,5489 - 39,5460) \text{ g}} \times 100\% \\ &= 72,73\%\end{aligned}$$

$$\begin{aligned}\text{Kadar Air (\%) II} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(41,1987 - 37,5322) \text{ g}}{(41,1987 - 36,9014) \text{ g}} \times 100\% \\ &= 69,19\%\end{aligned}$$

$$\text{Kadar Air (\%) rata-rata} = \frac{(72,73 + 69,19) \%}{2} = 70,96\%$$

- Batang

$$\begin{aligned}\text{Kadar Air (\%) I} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(49,7595 - 46,1648) \text{ g}}{(49,7595 - 44,7524) \text{ g}} \times 100\% \\ &= 71,79\%\end{aligned}$$

$$\begin{aligned}\text{Kadar Air (\%) II} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(42,3595 - 39,0389) \text{ g}}{(42,3595 - 37,3562) \text{ g}} \times 100\% \\ &= 66,37\%\end{aligned}$$

$$\text{Kadar Air (\%) rata-rata} = \frac{(71,79 + 66,37) \%}{2} = 69,08\%$$

- **Daun**

$$\begin{aligned}\text{Kadar Air (\%) I} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(49,6106 - 46,0557) \text{ g}}{(49,6106 - 44,6068) \text{ g}} \times 100\% \\ &= 71,04\%\end{aligned}$$

$$\begin{aligned}\text{Kadar Air (\%) II} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(47,3618 - 43,8670) \text{ g}}{(47,3618 - 42,3532) \text{ g}} \times 100\% \\ &= 69,76\%\end{aligned}$$

$$\text{Kadar Air (\%) rata-rata} = \frac{(71,04 + 69,76) \%}{2} = 70,4\%$$

3. Mangrove Titik 3

- **Akar**

$$\begin{aligned}\text{Kadar Air (\%) I} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(40,4472 - 37,0680) \text{ g}}{(40,4472 - 35,4456) \text{ g}} \times 100\% \\ &= 67,56\%\end{aligned}$$

$$\begin{aligned}\text{Kadar Air (\%) II} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(53,2220 - 49,7625) \text{ g}}{(53,2220 - 48,2140) \text{ g}} \times 100\% \\ &= 69,08\%\end{aligned}$$

$$\text{Kadar Air (\%) rata-rata} = \frac{(67,56 + 69,08) \%}{2} = 68,32 \%$$

- **Batang**

$$\begin{aligned}\text{Kadar Air (\% I)} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(52,6871 - 49,2363) \text{ g}}{(52,6871 - 47,6812) \text{ g}} \times 100\% \\ &= 68,93\%\end{aligned}$$

$$\begin{aligned}\text{Kadar Air (\% II)} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(46,8782 - 43,6337) \text{ g}}{(46,8782 - 41,8770) \text{ g}} \times 100\% \\ &= 64,87\%\end{aligned}$$

$$\text{Kadar Air (\% rata-rata)} = \frac{(68,93 + 64,87) \%}{2} = 66,90\%$$

- **Daun**

$$\begin{aligned}\text{Kadar Air (\% I)} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(34,1672 - 30,6685) \text{ g}}{(34,1672 - 29,1669) \text{ g}} \times 100\% \\ &= 69,97\%\end{aligned}$$

$$\begin{aligned}\text{Kadar Air (\% II)} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(40,3254 - 36,9874) \text{ g}}{(40,3254 - 35,3254) \text{ g}} \times 100\% \\ &= 66,76\%\end{aligned}$$

$$\text{Kadar Air (\% rata-rata)} = \frac{(69,97 + 66,76) \%}{2} = 68,37\%$$

4. Sedimen

- Titik 1

$$\begin{aligned}\text{Kadar Air (\%) I} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(46,8850 - 46,4551) \text{ g}}{(46,8850 - 41,8751) \text{ g}} \times 100\% \\ &= 8,58\%\end{aligned}$$

$$\begin{aligned}\text{Kadar Air (\%) II} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(40,1334 - 39,6973) \text{ g}}{(40,1334 - 35,1318) \text{ g}} \times 100\% \\ &= 8,72\%\end{aligned}$$

$$\text{Kadar Air (\%) rata-rata} = \frac{(8,58 + 8,72) \%}{2} = 8,65\%$$

- Titik 2

$$\begin{aligned}\text{Kadar Air (\%) I} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(53,2133 - 52,8202) \text{ g}}{(53,2133 - 48,2123) \text{ g}} \times 100\% \\ &= 7,86\%\end{aligned}$$

$$\begin{aligned}\text{Kadar Air (\%) II} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(53,6596 - 53,2500) \text{ g}}{(53,6596 - 48,6539) \text{ g}} \times 100\% \\ &= 8,18\%\end{aligned}$$

$$\text{Kadar Air (\%) rata-rata} = \frac{(7,86 + 8,18) \%}{2} = 8,02\%$$

- **Titik 3**

$$\begin{aligned} \text{Kadar Air (\% I)} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(50,0073 - 49,5746) \text{ g}}{(50,0073 - 45,0033) \text{ g}} \times 100\% \\ &= 8,65\% \end{aligned}$$

$$\begin{aligned} \text{Kadar Air (\% II)} &= \frac{W_1 - W_2}{W_1 - W_0} \times 100\% \\ &= \frac{(45,4794 - 45,0530) \text{ g}}{(45,4794 - 40,4784) \text{ g}} \times 100\% \\ &= 8,53\% \end{aligned}$$

$$\text{Kadar Air (\% rata-rata)} = \frac{(8,65 + 8,53) \%}{2} = 8,59\%$$

C. Perhitungan Konsentrasi Logam Pb dalam Air Laut, Sedimen, dan Mangrove

- Hasil Pengukuran Deret Standar

No	Konsentrasi (mg/L)	Absorbansi
1	0	0,0001
2	0,1	0,0005
3	0,2	0,0010
4	0,4	0,0020
5	0,8	0,0044
6	1,6	0,0085
7	3,2	0,0170

- Hasil Pengukuran Sampel Air Laut

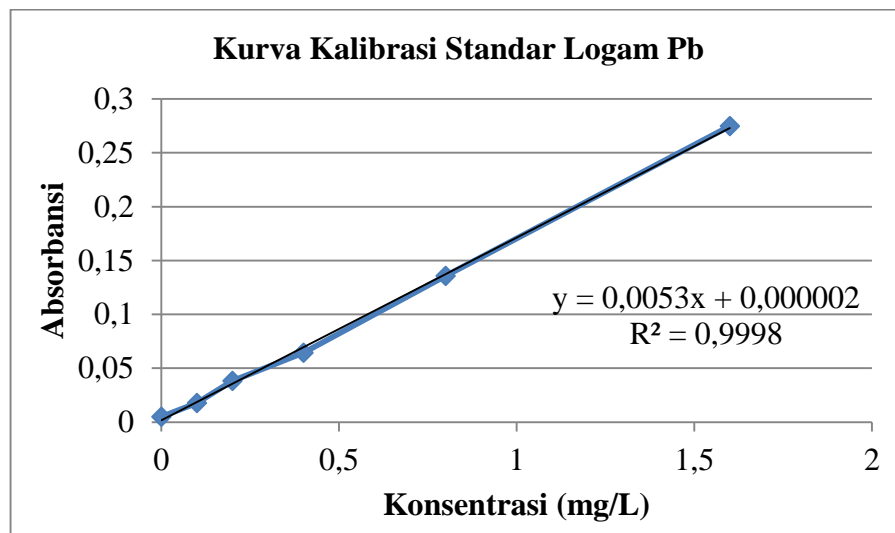
Lokasi	Absorbansi
Titik 1	0,0078
Titik 2	0,0059
Titik 3	0,0044

- Hasil Pengukuran Sampel Sedimen

Lokasi	Absorbansi
Titik 1	0,0085
Titik 2	0,0084
Titik 3	0,0073

- Hasil Pengukuran Sampel Mangrove

Morfologi	Absorbansi		
	Titik 1	Titik 2	Titik 3
Akar	0,0014	0,0011	0,0009
Batang	0,0018	0,0009	0,0008
Daun	0,0012	0,0017	0,0014



1. Konsentrasi Logam Pb dalam Air Laut

- **Titik 1**

$$y = 0,0053x + 0,000002$$

$$0,0078 = 0,0053x + 0,000002$$

$$x = \frac{0,0078}{0,0053}$$

$$x = 1,4713 \text{ mg/L}$$

$$C_{Pb} = \frac{C_x \cdot V_{flask}}{V_{contoh}}$$

$$C_{Pb} = \frac{1,4713 \text{ mg/L} \cdot 50 \text{ mL}}{200 \text{ mL}}$$

$$C_{Pb} = 0,37 \text{ mg/L}$$

- **Titik 2**

$$y = 0,0053x + 0,000002$$

$$0,0059 = 0,0053x + 0,000002$$

$$x = \frac{0,0059}{0,0053}$$

$$x = 1,1132 \text{ mg/L}$$

$$C_{Pb} = \frac{C_x \cdot V_{flask}}{V_{contoh}}$$

$$C_{Pb} = \frac{1,1132 \text{ mg/L} \cdot 50 \text{ mL}}{200 \text{ mL}}$$

$$C_{Pb} = 0,28 \text{ mg/L}$$

- **Titik 3**

$$y = 0,0053x + 0,000002$$

$$0,0044 = 0,0053x + 0,000002$$

$$x = \frac{0,0044}{0,0053}$$

$$x = 0,8298 \text{ mg/L}$$

$$C_{Pb} = \frac{C_s \cdot V_{flask}}{V_s}$$

$$C_{Pb} = \frac{0,8298 \text{ mg/L} \cdot 50 \text{ mL}}{200 \text{ mL}}$$

$$C_{Pb} = 0,21 \text{ mg/L}$$

2. Konsentrasi Logam Pb dalam Sedimen

- **Titik 1**

$$y = 0,0053x + 0,000002$$

$$0,0085 = 0,0053x + 0,000002$$

$$x = \frac{0,0085}{0,0053}$$

$$x = 1,6038 \text{ mg/L}$$

$$C_{\text{Pb}} = \frac{C_x \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Pb}} = \frac{1,6038 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{2,0007 \cdot 10^{-3} \text{ kg}}$$

$$C_{\text{Pb}} = 40,08 \text{ mg/kg}$$

- **Titik 2**

$$y = 0,0053x + 0,000002$$

$$0,0084 = 0,0053x + 0,000002$$

$$x = \frac{0,0084}{0,0053}$$

$$x = 1,5849 \text{ mg/L}$$

$$C_{\text{Pb}} = \frac{C_x \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Pb}} = \frac{1,5849 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{2,0005 \cdot 10^{-3} \text{ kg}}$$

$$= 39,61 \text{ mg/kg}$$

- **Titik 3**

$$y = 0,0053x + 0,000002$$

$$0,0073 = 0,0053x + 0,000002$$

$$x = \frac{0,0073}{0,0053}$$

$$x = 1,3774 \text{ mg/L}$$

$$C_{\text{Pb}} = \frac{C_x \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Pb}} = \frac{1,3774 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{2,0003 \cdot 10^{-3} \text{ kg}}$$

$$C_{Pb} = 34,43 \text{ mg/kg}$$

3. Konsentrasi Logam Pb dalam Mangrove Titik 1

- **Akar**

$$y = 0,0053x + 0,000002$$

$$0,0014 = 0,0053x + 0,000002$$

$$x = \frac{0,0014}{0,0053}$$

$$x = 0,2642 \text{ mg/L}$$

$$C_{Pb} = \frac{C_x \cdot V_{total}}{\text{gram contoh}}$$

$$C_{Pb} = \frac{0,2642 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0003 \cdot 10^{-3} \text{ kg}}$$

$$C_{Pb} = 13,20 \text{ mg/kg}$$

- **Batang**

$$y = 0,0053x + 0,000002$$

$$0,0018 = 0,0053x + 0,000002$$

$$x = \frac{0,0018}{0,0053}$$

$$x = 0,3487 \text{ mg/L}$$

$$C_{Pb} = \frac{C_x \cdot V_{total}}{\text{gram contoh}}$$

$$C_{Pb} = \frac{0,3487 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0006 \cdot 10^{-3} \text{ kg}}$$

$$C_{Pb} = 17,42 \text{ mg/kg}$$

- **Daun**

$$y = 0,0053x + 0,000002$$

$$0,0012 = 0,0053x + 0,000002$$

$$x = \frac{0,0012}{0,0053}$$

$$x = 0,2260 \text{ mg/L}$$

$$C_{\text{Pb}} = \frac{C_x \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Pb}} = \frac{0,2260 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0018 \cdot 10^{-3} \text{ kg}}$$

$$C_{\text{Pb}} = 11,30 \text{ mg/kg}$$

4. Konsentrasi Logam Pb dalam Mangrove Titik 2

- Akar

$$y = 0,0053x + 0,000002$$

$$0,0011 = 0,0053x + 0,000002$$

$$x = \frac{0,0011}{0,0053}$$

$$x = 0,2075 \text{ mg/L}$$

$$C_{\text{Pb}} = \frac{C_x \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Pb}} = \frac{0,2075 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0006 \cdot 10^{-3} \text{ kg}}$$

$$C_{\text{Pb}} = 10,37 \text{ mg/kg}$$

- Batang

$$y = 0,0053x + 0,000002$$

$$0,0009 = 0,0053x + 0,000002$$

$$x = \frac{0,0009}{0,0053}$$

$$x = 0,1698 \text{ mg/L}$$

$$C_{\text{Pb}} = \frac{C_x \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Pb}} = \frac{0,1698 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0008 \cdot 10^{-3} \text{ kg}}$$

$$C_{\text{Pb}} = 8,48 \text{ mg/kg}$$

- **Daun**

$$y = 0,0053x + 0,000002$$

$$0,0017 = 0,0053x + 0,000002$$

$$x = \frac{0,0017}{0,0053}$$

$$x = 0,3208 \text{ mg/L}$$

$$C_{\text{Pb}} = \frac{C_x \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Pb}} = \frac{0,3208 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{L}}{1,0002 \cdot 10^{-3} \text{kg}}$$

$$C_{\text{Pb}} = 16,03 \text{ mg/kg}$$

5. Konsentrasi Logam Pb dalam Mangrove Titik 3

- **Akar**

$$y = 0,0053x + 0,000002$$

$$0,0009 = 0,0053x + 0,000002$$

$$x = \frac{0,0009}{0,0053}$$

$$x = 0,1698 \text{ mg/L}$$

$$C_{\text{Pb}} = \frac{C_x \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Pb}} = \frac{0,1698 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{L}}{1,0010 \cdot 10^{-3} \text{kg}}$$

$$C_{\text{Pb}} = 8,48 \text{ mg/kg}$$

- **Batang**

$$y = 0,0053x + 0,000002$$

$$0,0008 = 0,0053x + 0,000002$$

$$x = \frac{0,0008}{0,0053}$$

$$x = 0,1509 \text{ mg/L}$$

$$\begin{aligned} C_{Cd} &= \frac{C_s \cdot V_{total}}{\text{gram contoh}} \\ &= \frac{0,1509 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0008 \cdot 10^{-3} \text{ kg}} \\ &= 7,54 \text{ mg/kg} \end{aligned}$$

- **Daun**

$$y = 0,0053x + 0,000002$$

$$0,0014 = 0,0053x + 0,000002$$

$$x = \frac{0,0014}{0,0053}$$

$$x = 0,2642 \text{ mg/L}$$

$$C_{Pb} = \frac{C_x \cdot V_{total}}{\text{gram contoh}}$$

$$C_{Pb} = \frac{0,2642 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0004 \cdot 10^{-3} \text{ kg}}$$

$$C_{Pb} = 13,20 \text{ mg/kg}$$

B. Perhitungan Konsentrasi Logam Cd dalam Air Laut, Sedimen, dan Mangrove

- Hasil Pengukuran Deret Standar

No	Konsentrasi (mg/L)	Absorbansi
1	0	0,0050
2	0,1	0,0178
3	0,2	0,0382
4	0,4	0,0644
5	0,8	0,1358
6	1,6	0,2747

- Hasil Pengukuran Sampel Air Laut

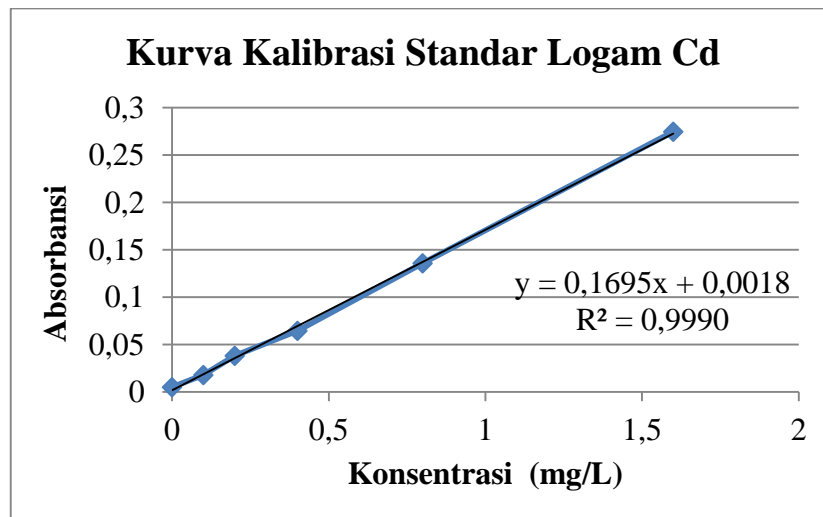
Lokasi	Absorbansi
Titik 1	0,0784
Titik 2	0,0817
Titik 3	0,0651

- Hasil Pengukuran Sampel Sedimen

Lokasi	Absorbansi
Titik 1	0,0152
Titik 2	0,0202
Titik 3	0,0100

- Hasil Pengukuran Sampel Mangrove

Morfologi	Absorbansi		
	Titik 1	Titik 2	Titik 3
Akar	0,0130	0,0074	0,0058
Batang	0,0100	0,0100	0,0067
Daun	0,0054	0,0074	0,0064



1. Konsentrasi Logam Cd dalam Air Laut

- Titik 1

$$y = 0,1695x + 0,0018$$

$$0,0784 = 0,1695x + 0,0018$$

$$x = \frac{0,0766}{0,1695}$$

$$x = 0,4519 \text{ mg/L}$$

$$\begin{aligned} C_{Cd} &= \frac{C_x \cdot V_{flask}}{V_s} \\ &= \frac{0,4519 \text{ mg/L} \cdot 50 \text{ mL}}{200 \text{ mL}} \\ &= 0,11 \text{ mg/L} \end{aligned}$$

- **Titik 2**

$$y = 0,1695x + 0,0018$$

$$0,0817 = 0,1695x + 0,0018$$

$$x = \frac{0,0799}{0,1695}$$

$$x = 0,4714 \text{ mg/L}$$

$$\begin{aligned} C_{Cd} &= \frac{C_x \cdot V_{flask}}{V_s} \\ &= \frac{0,4714 \text{ mg/L} \cdot 50 \text{ mL}}{200 \text{ mL}} \\ &= 0,12 \text{ mg/L} \end{aligned}$$

- **Titik 3**

$$y = 0,1695x + 0,0018$$

$$0,0651 = 0,1695x + 0,0018$$

$$x = \frac{0,0633}{0,1695}$$

$$x = 0,3734 \text{ mg/L}$$

$$\begin{aligned} C_{Cd} &= \frac{C_x \cdot V_{flask}}{V_s} \\ C_{Cd} &= \frac{0,3734 \text{ mg/L} \cdot 50 \text{ mL}}{200 \text{ mL}} \\ C_{Cd} &= 0,09 \text{ mg/L} \end{aligned}$$

2. Konsentrasi Logam Cd dalam Sedimen

- Titik 1

$$y = 0,1695x + 0,0018$$

$$0,0152 = 0,1695x + 0,0018$$

$$x = \frac{0,0134}{0,1695}$$

$$x = 0,0790 \text{ mg/L}$$

$$C_{\text{Cd}} = \frac{C_x \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Cd}} = \frac{0,0790 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{2,0002 \cdot 10^{-3} \text{ kg}}$$

$$C_{\text{Cd}} = 1,98 \text{ mg/kg}$$

- Titik 2

$$y = 0,1695x + 0,0018$$

$$0,0202 = 0,1695x + 0,0018$$

$$x = \frac{0,0184}{0,1695}$$

$$x = 0,1086 \text{ mg/L}$$

$$C_{\text{Cd}} = \frac{C_x \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Cd}} = \frac{0,1086 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{2,0005 \cdot 10^{-3} \text{ kg}}$$

$$C_{\text{Cd}} = 2,71 \text{ mg/kg}$$

- Titik 3

$$y = 0,1695x + 0,0018$$

$$0,0100 = 0,1695x + 0,0018$$

$$x = \frac{0,0082}{0,1695}$$

$$x = 0,0484 \text{ mg/L}$$

$$C_{\text{Cd}} = \frac{C_s \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Cd}} = \frac{0,0484 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{2,0003 \cdot 10^{-3} \text{ kg}}$$

$$C_{\text{Cd}} = 1,21 \text{ mg/kg}$$

3. Konsentrasi Logam Cd dalam Mangrove Titik 1

- Akar

$$y = 0,1695x + 0,0018$$

$$0,0130 = 0,1695x + 0,0018$$

$$x = \frac{0,0112}{0,1695}$$

$$x = 0,0661 \text{ mg/L}$$

$$C_{\text{Cd}} = \frac{C_s \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Cd}} = \frac{0,0661 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0005 \cdot 10^{-3} \text{ kg}}$$

$$C_{\text{Cd}} = 3,30 \text{ mg/kg}$$

- Batang

$$y = 0,1695x + 0,0018$$

$$0,0100 = 0,1695x + 0,0018$$

$$x = \frac{0,0082}{0,1695}$$

$$x = 0,0484 \text{ mg/L}$$

$$C_{\text{Cd}} = \frac{C_x \cdot V_{\text{total}}}{\text{gram contoh}}$$

$$C_{\text{Cd}} = \frac{0,0484 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0006 \cdot 10^{-3} \text{ kg}}$$

$$C_{\text{Cd}} = 2,42 \text{ mg/kg}$$

- **Daun**

$$y = 0,1695x + 0,0018$$

$$0,0054 = 0,1695x + 0,0018$$

$$x = \frac{0,0036}{0,1695}$$

$$x = 0,0212 \text{ mg/L}$$

$$C_{Cd} = \frac{C_x \cdot V_{total}}{\text{gram contoh}}$$

$$C_{Cd} = \frac{0,0212 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0004 \cdot 10^{-3} \text{ kg}}$$

$$C_{Cd} = 1,06 \text{ mg/kg}$$

4. Konsentrasi Logam Cd dalam Mangrove Titik 2

- **Akar**

$$y = 0,1695x + 0,0018$$

$$0,0074 = 0,1695x + 0,0018$$

$$x = \frac{0,0056}{0,1695}$$

$$x = 0,0330 \text{ mg/L}$$

$$C_{Cd} = \frac{C_x \cdot V_{total}}{\text{gram contoh}}$$

$$C_{Cd} = \frac{0,0330 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0006 \cdot 10^{-3} \text{ kg}}$$

$$C_{Cd} = 1,65 \text{ mg/kg}$$

- **Batang**

$$y = 0,1695x + 0,0018$$

$$0,0100 = 0,1695x + 0,0018$$

$$x = \frac{0,0082}{0,1695}$$

$$x = 0,0484 \text{ mg/L}$$

$$C_{Cd} = \frac{C_s \cdot V_{total}}{\text{gram contoh}}$$

$$C_{Cd} = \frac{0,0484 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0008 \cdot 10^{-3} \text{ kg}}$$

$$C_{Cd} = 2,42 \text{ mg/kg}$$

- **Daun**

$$y = 0,1695x + 0,0018$$

$$0,0074 = 0,1695x + 0,0018$$

$$x = \frac{0,0056}{0,1695}$$

$$x = 0,0330 \text{ mg/L}$$

$$C_{Cd} = \frac{C_x \cdot V_{total}}{\text{gram contoh}}$$

$$C_{Cd} = \frac{0,0330 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0002 \cdot 10^{-3} \text{ kg}}$$

$$C_{Cd} = 1,65 \text{ mg/kg}$$

5. Konsentrasi Logam Cd dalam Mangrove Titik 3

- **Akar**

$$y = 0,1695x + 0,0018$$

$$0,0058 = 0,1695x + 0,0018$$

$$x = \frac{0,0040}{0,1695}$$

$$x = 0,0236 \text{ mg/L}$$

$$C_{Cd} = \frac{C_x \cdot V_{total}}{\text{gram contoh}}$$

$$C_{Cd} = \frac{0,0236 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0010 \cdot 10^{-3} \text{ kg}}$$

$$C_{Cd} = 1,18 \text{ mg/kg}$$

- **Batang**

$$y = 0,1695x + 0,0018$$

$$0,0067 = 0,1695x + 0,0018$$

$$x = \frac{0,0049}{0,1695}$$

$$x = 0,0289 \text{ mg/L}$$

$$C_{Cd} = \frac{C_x \cdot V_{total}}{\text{gram contoh}}$$

$$C_{Cd} = \frac{0,0289 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0008 \cdot 10^{-3} \text{ kg}}$$

$$C_{Cd} = 1,44 \text{ mg/kg}$$

- **Daun**

$$y = 0,1695x + 0,0018$$

$$0,0064 = 0,1695x + 0,0018$$

$$x = \frac{0,0046}{0,1695}$$

$$x = 0,0271 \text{ mg/L}$$

$$C_{Cd} = \frac{C_x \cdot V_{total}}{\text{gram contoh}}$$

$$C_{Cd} = \frac{0,0271 \text{ mg/L} \cdot 50 \text{ mL} \cdot 10^{-3} \text{ L}}{1,0004 \cdot 10^{-3} \text{ kg}}$$

$$C_{Cd} = 1,36 \text{ mg/kg}$$

Lampiran 4. Dokumentasi



Gambar 9. Lokasi sampling



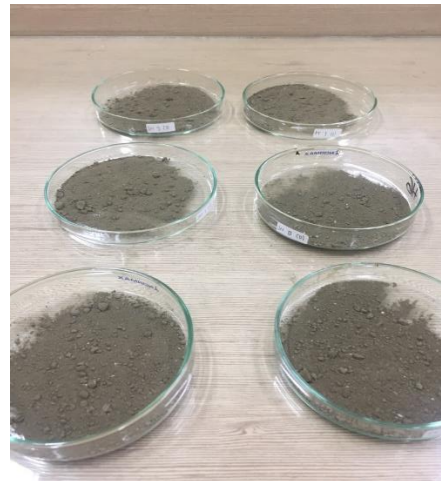
Gambar 10. Proses sampling air, sedimen, dan Mangrove



Gambar 11. Sampel dikering-anginkan



Gambar 12. Sampel dikeringkan di dalam oven



Gambar 13.. Sampel setelah dikeringkan



Gambar 14.. Sampel setelah digerus dan diayak



Gambar 15. Proses destruksi sampel



Gambar 16. Proses penyaringan hasil destruksi



Gambar 17.. Sampel siap dianalisis



Gambar 18. Proses analisis sampel dengan menggunakan SSA

