LAMPIRAN

Lampiran 1

1. Pembuatan Larutan induk Cd^{2+} 1000 ppm

1000 ppm Cd^{2+} = 1000 mgram/L

$$1000 \text{ ppm } Cd^{2+} = \frac{ArCd}{BMCdCl_2.H_2O} \text{ x w } CdCl_2.H_2O$$

$$1000 \text{ ppm } Cd^{2+} = \frac{112,4}{201,4} \text{ x w } CdCl_2.H_2O$$

w $CdCl_2.H_2O$ = 1791,815 mgram

= 1,79185 gram

Untuk membuat larutan Cd^{2+} 1000 ppm adalah dengan melarutkan 1,79185 gram $CdCl_2$. H_2O ke dalam aquades 1000 mL.

2. Pembuatan larutan Cd^{2+}100 ppm.

$V_1N_1 = V_2 N_2$

V_1. 1000 ppm = 100 ppm. 100 mL

V_1 = 10 mL

Untuk membuat larutan Cd^{2+} 100 ppm adalah dengan mengambil 10 mL Cd^{2+} 1000 ppm kemudian dimasukkan ke dalam labutakar 100 mL dan ditambahkan aquades sampai tanda batas. Untuk membuat larutan Cd^{2+} 2 ppm, 4 ppm 8 ppm, 10 ppm, 12 ppm, 20 ppm dan 50 ppm sama caranya dengan perhitungan di atas.

3. Pembuatan Larutan xantin 100 ppm.

100 mgram xantin dilarutkan dalam 1 liter kloroform.

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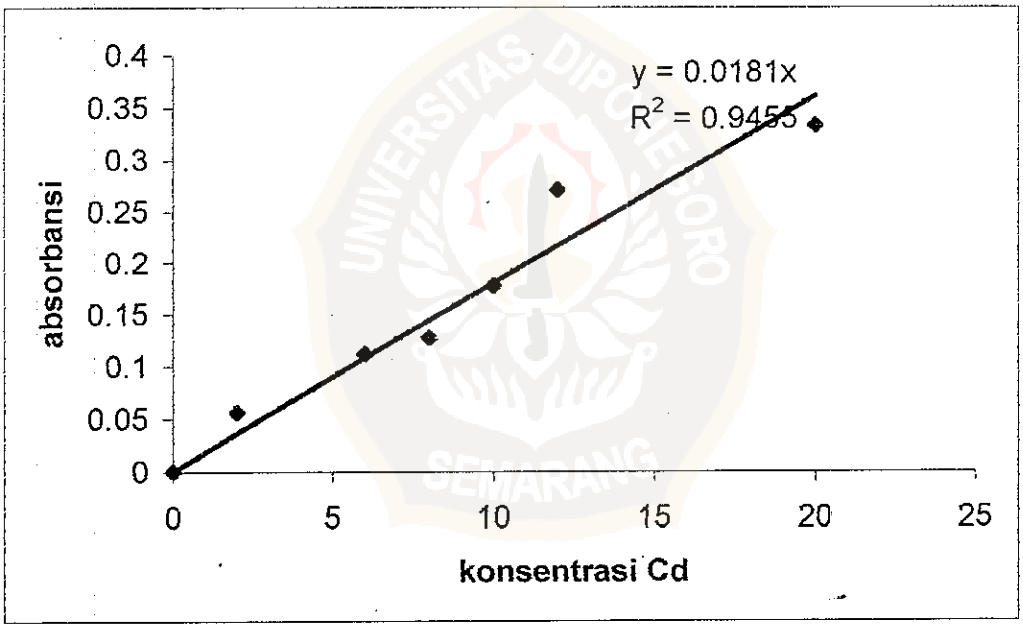
Lampiran 2

1. Kurva Standar Analisis AAS

$[Cd^{2+}]$ (ppm)	Absorbansi
0	0.0005
2	0.0569
6	0.1122
8	0.1279
10	0.1782
12	0.2712
20	0.3334



Grafik 1. Kurva standar analisis AAS

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2. Perhitungan konsentrasi sampel

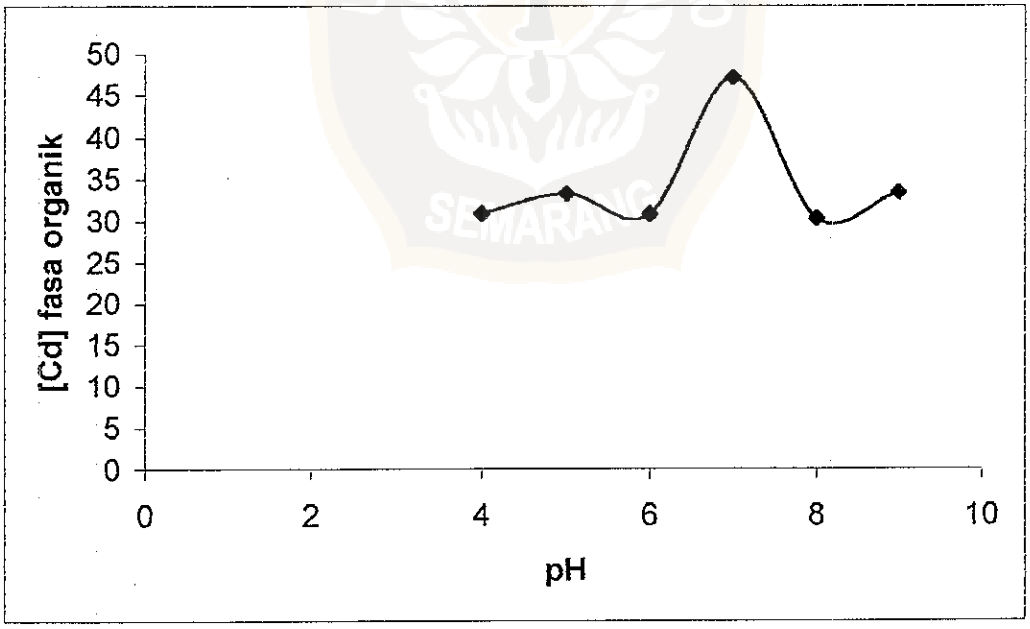
Persamaan garis y = 0.0181 x

Dimana y = absorbansi

x = konsentrasi sampel

pH	Absorbansi sampel	$[Cd^{2+}]_{awal}$ (ppm)	$[Cd^{2+}]_{air}$ (ppm)	$[Cd^{2+}]_{organik}$ (ppm)	D
4	0.3409	50	18.84	31.16	1.65
5	0.2993	50	16.54	33.46	2.02
6	0.3422	50	18.91	31.09	1.64
7	0.05	50	2.77	47.23	17.1
8	0.3505	50	19.37	30.63	1.58
9	0.2966	50	16.39	33.61	2.05

$$D = \frac{[Cd^{2+}]organik}{[Cd^{2+}]air}$$



Grafik 2. Hubungan pH dengan $[Cd^{2+}]_{organik}$

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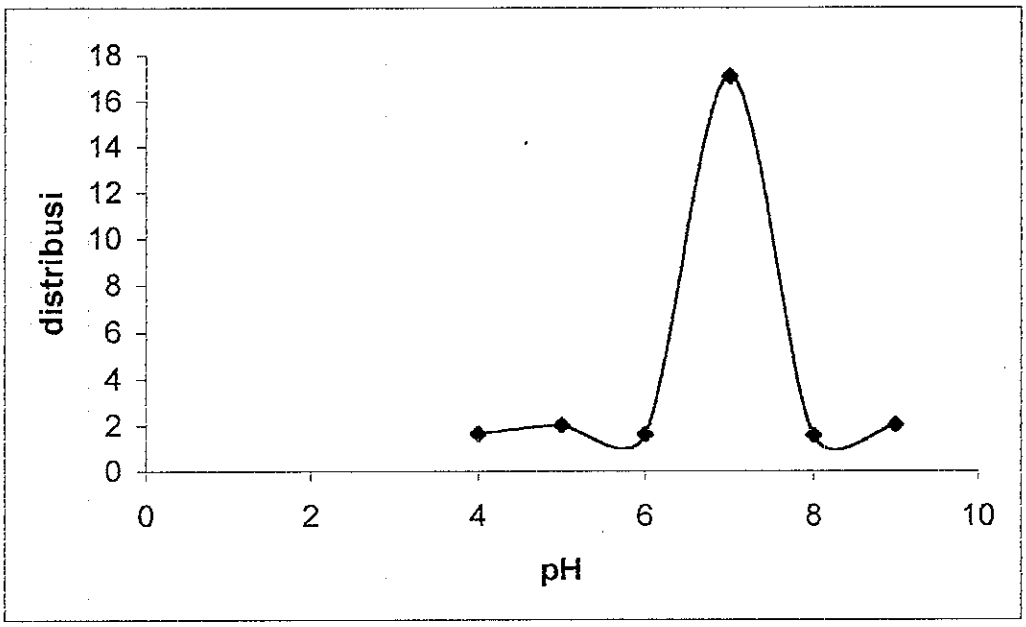

Grafik 3. Hubungan pH dengan nilai distribusi [Cd^{2+}]

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Lampiran 3

1. Penentuan bilangan gelombang ikatan Cd–O dengan hukum Hooke

$$\sigma = \frac{1}{2\pi.c}\sqrt{\frac{K(m_1+m_2)}{m_1 m_2}}$$

σ = bilangan gelombang (cm^{-1})

K = tetapan gaya ikatan (dyne cm^{-1} = g det^{-2})

m_1= massa atom Cd

m_2= massa atom O

c = kecepatan cahaya (cm det^{-1})

Diketahui:

K = 5 x 10^{5} g det^{-1}(ikatan tunggal Cd–O)

c = 3 x 10^{10} cm det^{-1}

Maka:

$$\sigma = \frac{1}{2\pi.c}\sqrt{\frac{K(m_1+m_2)}{m_1 m_2}}$$

$$\sigma = \frac{1}{2\pi.(3x10^{10}cm^{-1})}\sqrt{\frac{5x10^{5}.\left\{\frac{112,41}{6,023}+\frac{16}{6,023}\right\}x10^{-23}}{\left\{\left(\frac{112,41}{6,023}\right)x10^{-23}x\left(\frac{16}{6,023}\right)x10^{-23}\right\}}}$$

$$\sigma = \left\{\frac{1}{1,884x10^{10}cm^{-1}}\right\}\sqrt{2,1507x10^{28}}$$

$$\sigma = \frac{1,46x10^{14}}{1,884x10^{11}cm^{-1}}$$

σ = 778,4 cm^{-1}

Jadi puncak serapan ikatan Cd–O akan muncul pada bilangan gelombang 778,4 cm^{-1}. Spektra yang muncul terletak pada 771,5 cm^{-1} dan dianggap sama dengan hasil perhitungan karena perbedaan yang sangat kecil sekitar 6 cm^{-1}.

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