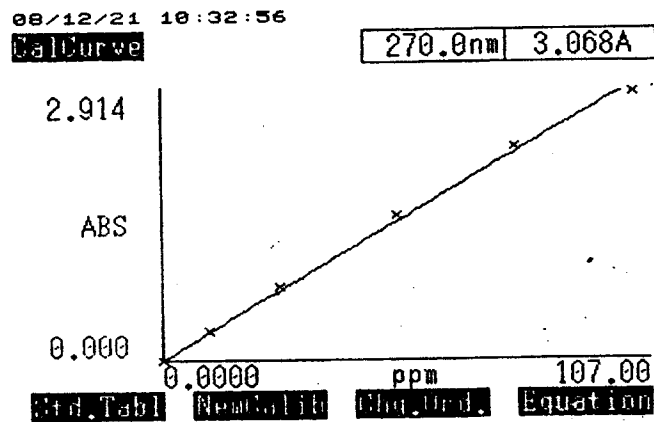


LAMPIRAN A

DATA PERCOBAAN



Gambar A.1. Kurva Standar Adsorpsi Fenol Dengan Tanah Gambut

Tabel A.1. Data waktu kesetimbangan adsorpsi fenol dengan tanah gambut

Waktu (menit)	Adsorbansi (ABS)	Konsentrasi Fenol Sisa (ppm)
0	2,902	100
15	2,301	81,612
30	2,027	71,908
45	2,104	74,618
90	2,124	75,348
180	2,063	73,155
1440	2,205	77,341
2880	2,210	78,374

Tabel A.2 Data Konsentrasi Fenol Kesetimbangan Pada Variasi Suhu

Co	Konsentrasi Fenol Saat Setimbang (Ce)		
	suhu 30 C	suhu 40 C	suhu 50 C
100	73,198	87,803	90,159
120	81,036	92,289	92,469
140	85,174	89,840	99,899
160	108,430	133,460	140,711

LAMPIRAN B

DATA PERHITUNGAN

1. Menghitung jumlah adsorbat yang terjerap pada adsorben saat kesetimbangan (Q_e)

$$\text{Konsentrasi awal } (C_0) = 100 \text{ ppm}$$

$$\text{Konsentrasi setimbang } (C_e) = 73,198 \text{ ppm}$$

$$\text{Massa adsorben} = 25 \text{ gr}$$

$$\text{Volume larutan fenol} = 0,5 \text{ liter}$$

$$Q_e = \frac{(C_0 - C_e)}{\text{massa adsorben}} v$$

$$Q_e = \frac{(100 - 73,198) \text{ mg/l}}{25 \text{ gr gambut aktif}} 0,5 \text{ l} = 0,53604 \text{ mg fenol/g gambut}$$

2. Menghitung konstanta model isoterm langmuir

$$Q_e = \frac{Q_0 K C_e}{1 + K C_e}$$

$$\frac{1}{Q_e} = \frac{1 + K C_e}{Q_0 K C_e}$$

$$\frac{1}{Q_e} = \frac{1}{Q_0 K C_e} + \frac{1}{Q_0}$$

$$y = a x + b$$

dari kurva diperoleh persamaan $y = 183,68 x - 0,8991$

$$Q_0 = \frac{1}{-0,8991} = -1,11222$$

$$K_L = \frac{1}{-1,11222 \times 183,68} = -0,0048949$$

3. Menghitung konstanta model isoterm freundlich

$$Q_e = KC_e^{1/n}$$

$$\log Q_e = \log K + \frac{1}{n} \log C_e$$

$$y = b + a x$$

dari kurva diperoleh persamaan $y = -2,9115 + 1,4629 x$

$$n = \frac{1}{1,4629} = 0,6835737$$

$$K_F = 10^{-2,9115} = 0,001226$$

4. Menghitung (Q_e) dengan menggunakan model isoterm langmuir

$$Q_e = \frac{Q_0 KC_e}{1 + KC_e}$$

Diketahui : $Q_0 = -1,11222$; $K = -0,0048949$; $C_e = 73,198$

$$Q_e = \frac{-1,11222 \times (-0,0048949) \times 73,198}{1 + (-0,0048949)73,198} = 0,654751 \text{ mg minyak/g gambut aktif}$$

5. Menghitung (Q_e) dengan menggunakan model isoterm Freundlich

$$Q_e = KC_e^{1/n}$$

Diketahui : $K = 0,001226$; (C_e) = 73,198; $1/n = 1,4629$

$$Q_e = 0,001226 \times 73,198^{-1,4629} = 0,654751 \text{ mg minyak/g gambut aktif}$$

6. Perhitungan ΔH

$$\ln kl = \ln k_o + \left[\frac{\Delta H}{R} \frac{1}{T} \right]$$

$$y = a + b x$$

Dari kurva diperoleh persamaan $y = -2,888 - 983,62x$, sehingga didapat

- $\Delta H / R = -983,62$ dengan $R = 1.987 \text{ cal/mol } ^\circ\text{K}$

$$\Delta H = 1,954453 \text{ kcal/mol } ^\circ\text{K}$$

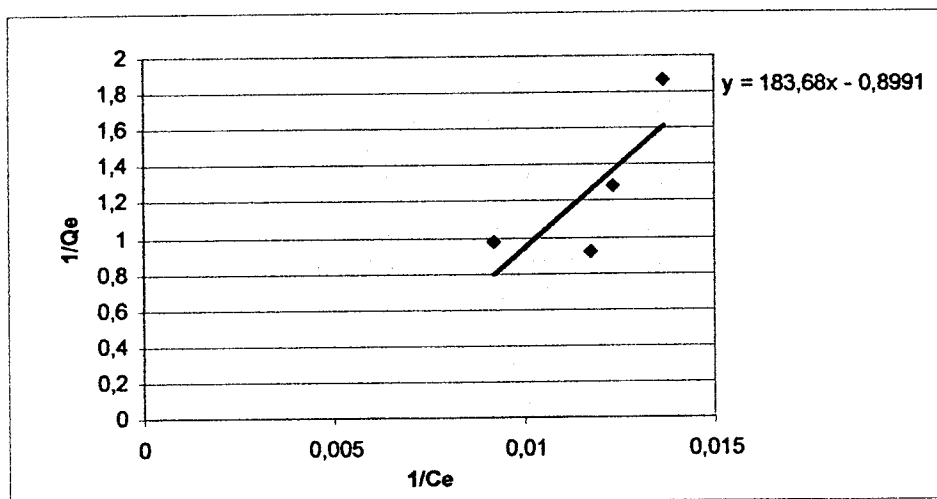
LAMPIRAN C

HASIL PERHITUNGAN

C. 1. Pada Suhu 30°C

Tabel C.1.1 Model Langmuir Pada Suhu 30°C

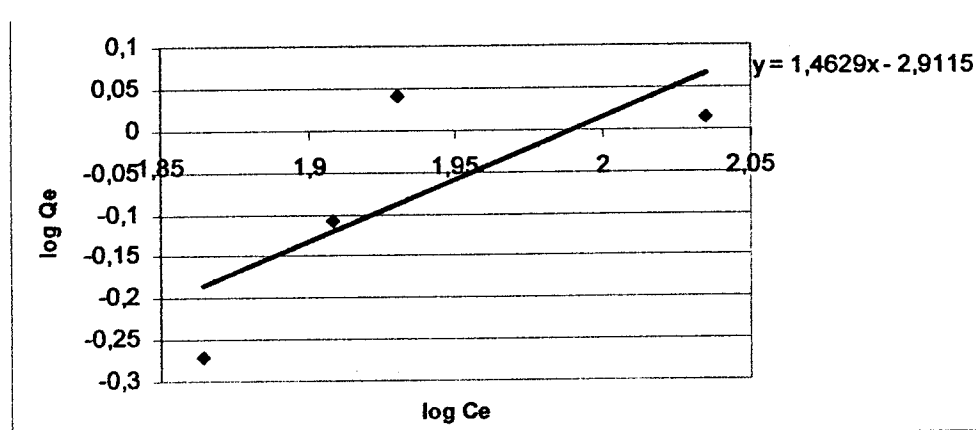
Co	Ce	Qe	y = 1/Qe	x = 1/Ce	Qo	K _L	Qe model
100	73,198	0,5360	1,8655	0,0137	-1,1122	-0,0049	0,6210
120	81,036	0,7793	1,2832	0,0123	-1,1122	-0,0049	0,7312
140	85,174	1,0966	0,9120	0,0117	-1,1122	-0,0049	0,7953
160	108,430	1,0314	0,9696	0,0092	-1,1122	-0,0049	1,2580



Gambar C.1.1 Grafik isoterm Langmuir pada suhu 30°C

Tabel C.1.2. Model Freundlich Pada Suhu 30°C

Co	Ce	Qe	y = log Qe	x = log Ce	K _F	n	Qe model
100	73,198	0,5360	-0,2708	1,8645	0,001226	0,6836	0,6547
120	81,036	0,7793	-0,1083	1,9087	0,001226	0,6836	0,7598
140	85,174	1,0965	0,0400	1,9303	0,001226	0,6836	0,8172
160	108,430	1,0314	0,0134	2,0351	0,001226	0,6836	1,1634

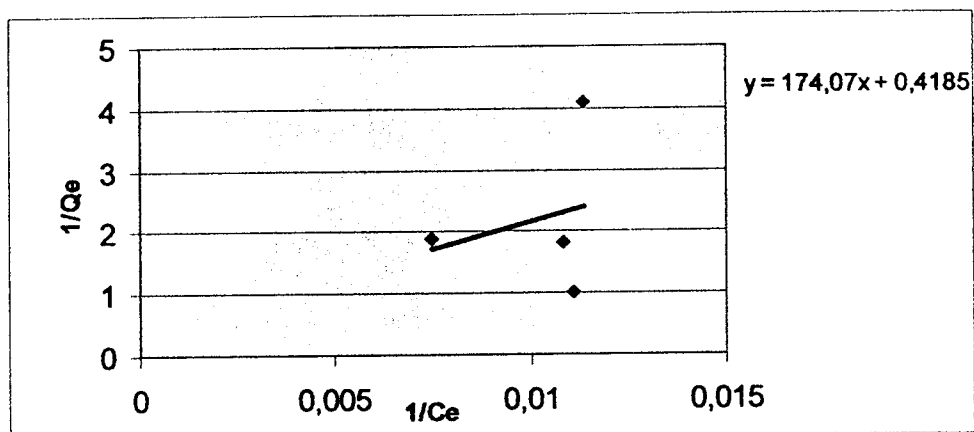


Gambar C.1.2 Grafik isoterm Freundlich pada suhu 30°C

C. 2. Pada Suhu 40°C

Tabel C.2.1 Model Langmuir Pada Suhu 40°C

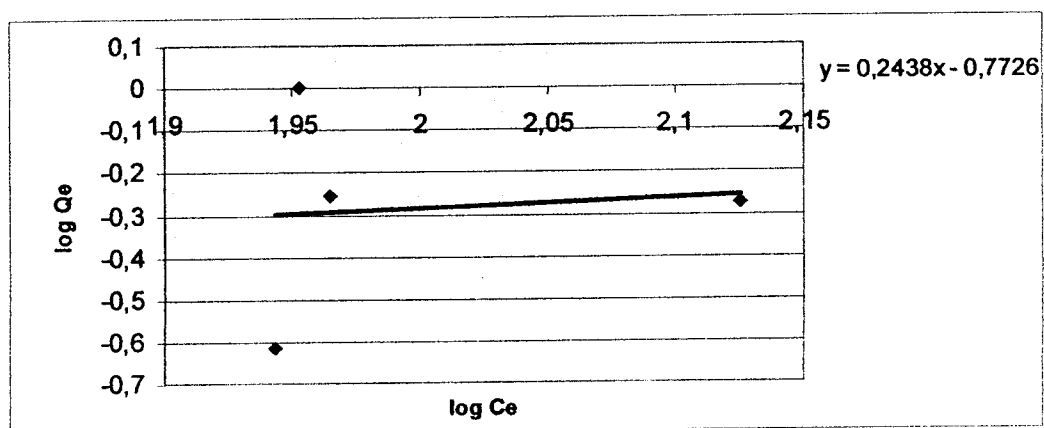
Co	Ce	Qe	y = 1/Qe	x = 1/Ce	Qo	K _L	Qe model
100	87,803	0,2439	4,0994	0,0114	2,3895	0,00240	0,4165
120	92,289	0,5542	1,8044	0,0108	2,3895	0,00240	0,4339
140	89,840	1,0032	0,9968	0,0111	2,3895	0,00240	0,4244
160	133,460	0,5308	1,8839	0,0075	2,3895	0,00240	0,5805



Gambar C.2.1 Grafik isoterm Langmuir pada suhu 40°C

Tabel C.2.2 Model Freundlich Pada Suhu 40°C

Co	Ce	Qe	y = log Qe	x = log Ce	K _F	n	Qe model
100	87,803	0,2439	-0,6127	1,9435	0,16881	4,1017	0,5026
120	92,289	0,5542	-0,2563	1,9652	0,16881	4,1017	0,5087
140	89,840	1,0032	0,0014	1,9535	0,16881	4,1017	0,5054
160	133,460	0,5308	-0,2751	2,1254	0,16881	4,1017	0,5566

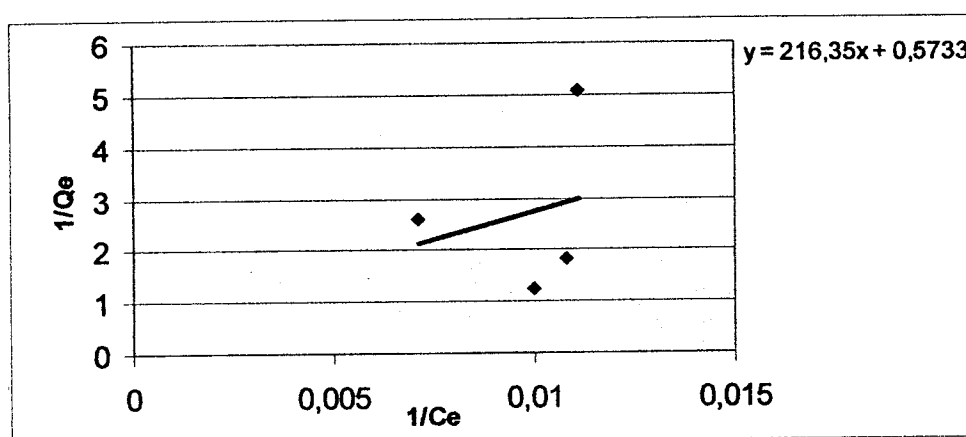


Gambar C.2.2 Grafik isoterm Freundlich pada suhu 40°C

C. 3. Pada Suhu 50°C

Tabel C.3.1 Model Langmuir Pada Suhu 50°C

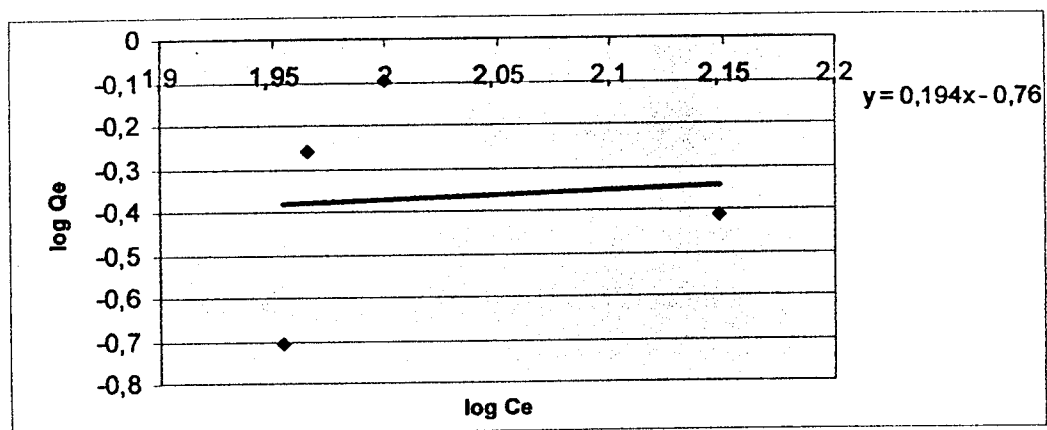
Co	Ce	Qe	y = 1/Qe	x = 1/Ce	Qo	K _L	Qe model
100	90,159	0,1968	5,0808	0,0111	1,7443	0,00265	0,3364
120	92,469	0,5506	1,8161	0,0108	1,7443	0,00265	0,3433
140	99,899	0,8020	1,2469	0,0100	1,7443	0,00265	0,3651
160	140,710	0,3858	2,5921	0,0071	1,7443	0,00265	0,4737



Gambar C.3.1 Grafik isoterm Langmuir pada suhu 50°C

Tabel C.3.2 Model Freundlich Pada Suhu 50°C

Co	Ce	Qe	y = log Qe	x = log Ce	K _F	n	Qe model
100	90,159	0,1968	-0,7059	1,9550	0,17378	5,1546	0,4162
120	92,469	0,5506	-0,2592	1,9660	0,17378	5,1546	0,4182
140	99,899	0,8020	-0,0958	1,9997	0,17378	5,1546	0,4245
160	140,710	0,3858	-0,4137	2,1483	0,17378	5,1546	0,4537



Gambar C.3.2 Grafik isotherm Freundlich pada suhu 50°C