

Lampiran 1: Hasil pengolahan data kandungan timbal dalam tanaman.

1.1) Bioakumulasi ion Pb^{2+} pada waktu t dengan konsentrasi awal= 5 ppm.

No.	t(hari)	Kandungan Pb (ppm) dalam				Total kandungan Pb dalam 10 gr tanaman (ppm)
		Akar (2,5 gr)	Batang (5 gr)	Daun (2,5 gr)	Lumpur (5 gr)	
1.	5	0,40	0,30	0,40	0,97	1,10
2.	10	0,35	0,59	0,61	0,82	1,55
3.	15	0,52	0,64	0,60	0,78	1,76
4.	20	0,61	0,65	0,62	0,72	1,88
5.	25	0,62	0,67	0,65	0,67	1,94

1.2) Bioakumulasi ion Pb^{2+} pada waktu t dengan konsentrasi awal= 10 ppm.

No.	t(hari)	Kandungan Pb (ppm) dalam				Total kandungan Pb dalam 10 gr tanaman (ppm)
		Akar (2,5 gr)	Batang (5 gr)	Daun (2,5 gr)	Lumpur (5 gr)	
1.	5	0,34	0,38	0,50	1,42	1,22
2.	10	0,49	0,58	0,60	1,30	1,67
3.	15	0,52	0,64	0,71	1,23	1,87
4.	20	0,63	0,65	0,73	1,10	2,01
5.	25	0,65	0,67	0,80	1,00	2,12

1.3) Bioakumulasi ion Pb^{2+} pada waktu t dengan konsentrasi awal= 15 ppm.

No.	t(hari)	Kandungan Pb (ppm) dalam				Total kandungan Pb dalam 10 gr tanaman (ppm)
		Akar (2,5 gr)	Batang (5 gr)	Daun (2,5 gr)	Lumpur (5 gr)	
1.	5	0,44	0,48	0,40	1,34	1,32
2.	10	0,53	0,63	0,67	1,56	1,83
3.	15	0,65	0,66	0,68	1,52	1,99
4.	20	0,67	0,70	0,72	1,41	2,09
5.	25	0,69	0,72	0,75	1,21	2,16



Lampiran 2: Hasil pengolahan data kandungan timbal dalam tanaman dengan menggunakan SSA.

BLANK	0.00	-0.0001	-0.001	
BLANK	0.00	-0.0003	-0.001	
BLANK	0.00	0.0000	-0.001	
STD 1	0.50	0.0002	-0.001	X
STD 1	0.50	0.0003	-0.001	X
STD 1	0.50	0.0002	0.000	X
STD 2	1.00	0.0003	-0.001	X
STD 2	1.00	0.0001	0.000	X
STD 2	1.00	-0.0001	-0.001	X
STD 3	2.00	0.0020	0.000	
STD 3	2.00	0.0016	0.000	
STD 3	2.00	0.0014	0.000	
STD 4	4.00	0.0051	0.001	
STD 4	4.00	0.0053	0.001	
STD 4	4.00	0.0061	0.000	
STD 4	4.00	0.0063	0.000	
STD 4	4.00	0.0063	0.001	
STD 5	8.00	0.0153	0.002	
STD 5	8.00	0.0159	0.002	
STD 5	8.00	0.0157	0.002	
STD 6	10.00	0.0192	0.003	
STD 6	10.00	0.0200	0.002	
STD 6	10.00	0.0196	0.003	
CORR. COEFF. = 0.9949				
STD 1 DELETED				
CORR. COEFF. = 0.9948				
STD 2 DELETED				
CORR. COEFF. = 0.9942				
STD 3 DELETED				
CORR. COEFF. = 0.9965				
1	3.03	0.0054	0.000	
1	10.80	0.0210	0.003	C
1	5.19	0.0097	0.002	
MEAN=	6.34	SD= 4.01	RSD= 63.2%	
1	0.38	0.0000	0.000	
1	0.47	0.0002	-0.001	
1	0.37	0.0000	0.000	
MEAN=	0.41	SD= 0.06	RSD= 14.6%	
2	0.47	0.0002	-0.000	
2	0.28	-0.0002	0.000	
2	0.32	-0.0001	0.000	
MEAN=	0.36	SD= 0.10	RSD= 27.8%	
3	0.47	0.0002	0.000	
3	0.40	0.0001	0.001	
3	0.39	0.0001	0.000	
MEAN=	0.42	SD= 0.04	RSD= 9.5%	

4	0.37	0.0000			0.000
4	0.33	-0.0001			0.000
4	0.32	-0.0001			0.001
MEAN=	0.34	SD= 0.03	RSD= 8.8%		
5	0.33	0.0000			-0.001
5	0.39	0.0001			0.000
5	0.43	0.0001			0.000
MEAN=	0.38	SD= 0.05	RSD= 13.2%		
6	0.43	0.0002			-0.001
6	0.57	0.0004			-0.001
6	0.50	0.0003			-0.001
MEAN=	0.50	SD= 0.07	RSD= 14.0%		
7	0.41	0.0001			0.000
7	0.40	0.0001			0.000
7	0.52	0.0003			0.000
MEAN=	0.44	SD= 0.07	RSD= 15.9%		
8	0.32	-0.0001			-0.001
8	0.10	-0.0005			0.000
8	0.31	-0.0001			0.000
MEAN=	0.24	SD= 0.12	RSD= 50.0%		
9	0.36	0.0000			-0.001
9	0.39	0.0001			-0.001
9	0.44	0.0002			-0.001
MEAN=	0.40	SD= 0.04	RSD= 10.0%		
10	0.26	-0.0002			-0.001
10	0.29	-0.0001			-0.001
10	0.51	0.0003			-0.001
MEAN=	0.35	SD= 0.14	RSD= 40.0%		
11	0.41	0.0001			0.000
11	0.57	0.0004			0.000
11	0.50	0.0003			0.000
MEAN=	0.49	SD= 0.08	RSD= 16.3%		
12	1.21	0.0017			0.001
12	1.24	0.0018			0.001
12	1.24	0.0018			0.001
MEAN=	1.23	SD= 0.02	RSD= 1.6%		
13	0.26	-0.0002			0.000
13	0.24	-0.0002			0.000
13	0.23	-0.0003			-0.001
MEAN=	0.24	SD= 0.02	RSD= 8.3%		
14	0.44	0.0002			0.000
14	0.43	0.0001			0.000
14	0.45	0.0002			0.000
MEAN=	0.44	SD= 0.01	RSD= 2.3%		
15	0.54	0.0004			0.000
15	0.48	0.0002			0.000
15	0.48	0.0002			0.000
MEAN=	0.50	SD= 0.03	RSD= 6.0%		

16	0.53	0.0003			-0.001
16	0.56	0.0004			-0.001
16	0.51	0.0003			0.000
MEAN=	0.53	SD= 0.03	RSD= 5.7%		
17	0.55	0.0004			-0.001
17	0.54	0.0004			-0.001
17	0.53	0.0003			-0.001
MEAN=	0.54	SD= 0.01	RSD= 1.9%		
18	0.36	0.0000			0.000
18	0.37	0.0000			0.000
18	0.27	-0.0002			0.000
MEAN=	0.33	SD= 0.06	RSD= 18.2%		
19	0.38	0.0000			0.000
19	0.63	0.0005			-0.001
19	0.53	0.0004			0.000
19	1.01	0.0013			0.000
MEAN=	0.72	SD= 0.25	RSD= 34.7%		
20	0.56	0.0004			0.000
20	0.22	-0.0003			-0.001
20	0.14	-0.0004			0.000
20	0.15	-0.0004			0.000
MEAN=	0.17	SD= 0.04	RSD= 23.5%		
20	0.16	-0.0004			0.000
20	0.17	-0.0004			-0.001
20	0.17	-0.0002			-0.001
MEAN=	0.20	SD= 0.06	RSD= 30.0%		
21	0.25	-0.0002			-0.001
21	0.43	0.0001			-0.001
21	0.22	-0.0003			0.000
MEAN=	0.30	SD= 0.11	RSD= 36.7%		
22	0.56	0.0004			0.000
22	0.70	0.0007			0.000
22	0.66	0.0006			0.001
MEAN=	0.64	SD= 0.07	RSD= 10.9%		
23	0.33	-0.0001			0.001
23	0.42	0.0001			0.001
23	0.48	0.0002			0.000
MEAN=	0.41	SD= 0.08	RSD= 19.5%		
24	0.67	0.0006			-0.001
24	0.62	0.0005			0.000
24	0.66	0.0006			0.000
MEAN=	0.65	SD= 0.03	RSD= 4.6%		
25	0.20	0.0003			-0.001
25	0.17	0.0004			0.000
25	0.25	0.0002			0.000
MEAN=	0.21	SD= 0.04	RSD= 19.0%		

26	0.33	-0.0001			-0.001
26	0.48	0.0003			-0.001
26	0.52	0.0003			-0.001
MEAN=	0.44	SD= 0.10	RSD=	22.7%	
27	0.40	0.0001			0.000
27	0.37	0.0000			0.000
27	0.47	0.0002			0.000
MEAN=	0.41	SD= 0.05	RSD=	12.2%	
28	0.19	-0.0003			0.001
28	0.29	-0.0001			0.000
28	0.38	0.0000			0.000
MEAN=	0.29	SD= 0.10	RSD=	34.5%	
29	0.19	-0.0003			-0.001
29	0.16	-0.0004			0.000
29	0.23	-0.0003			0.000
MEAN=	0.19	SD= 0.04	RSD=	21.1%	
30	0.46	0.0002			-0.001
30	0.40	0.0001			0.000
30	0.31	-0.0001			0.000
MEAN=	0.39	SD= 0.08	RSD=	20.5%	
31	0.38	0.0000			-0.001
31	0.33	0.0000			-0.001
31	0.44	0.0002			-0.001
MEAN=	0.38	SD= 0.06	RSD=	15.8%	
32	0.43	0.0002			-0.001
32	0.40	0.0001			-0.002
32	0.47	0.0002			-0.001
MEAN=	0.43	SD= 0.04	RSD=	9.3%	
33	0.45	0.0002			-0.001
33	0.50	0.0003			-0.001
33	0.46	0.0002			-0.001
MEAN=	0.47	SD= 0.03	RSD=	6.4%	
34	0.85	0.0010			0.000
34	0.73	0.0008			0.000
34	0.87	0.0010			-0.001
MEAN=	0.82	SD= 0.08	RSD=	9.8%	
35	0.80	0.0009			0.002
35	0.83	0.0010			0.002
35	0.82	0.0009			0.001
MEAN=	0.82	SD= 0.02	RSD=	2.4%	
36	0.55	0.0004			0.000
36	0.65	0.0006			0.001
36	0.66	0.0006			0.001
MEAN=	0.62	SD= 0.06	RSD=	9.7%	
37	0.43	0.0001			0.000
37	0.36	0.0000			0.000
37	0.42	0.0001			0.000
MEAN=	0.40	SD= 0.04	RSD=	10.0%	

38	0.39	0.0001		0.000
38	0.39	0.0001		0.000
38	0.49	0.0003		0.000
MEAN=	0.42	SD= 0.06	RSD= 14.3%	
39	1.52	0.0023		-0.001
39	1.52	0.0023		-0.001
39	1.21	0.0017		-0.002
MEAN=	1.42	SD= 0.18	RSD= 12.7%	
40	0.39	0.0001		-0.001
40	0.39	0.0001		-0.001
40	0.36	0.0000		-0.001
MEAN=	0.38	SD= 0.02	RSD= 5.3%	
41	0.38	0.0001		0.000
41	0.49	0.0003		0.000
41	0.28	-0.0002		0.000
MEAN=	0.38	SD= 0.11	RSD= 28.9%	
42	0.40	0.0001		-0.002
42	1.10	0.0015		-0.001
42	1.41	0.0021		-0.001
MEAN=	0.97	SD= 0.52	RSD= 53.6%	
43	0.53	0.0004		0.000
43	0.55	0.0004		0.000
43	0.53	0.0003		0.000
MEAN=	0.22	SD= 0.03	RSD= 1.9%	
43	0.20	-0.0003		0.000
43	0.22	-0.0003		0.000
43	0.25	-0.0002		0.000
MEAN=	0.22	SD= 0.03	RSD= 13.6%	
44	0.26	-0.0002		0.000
44	0.34	0.0000		0.000
44	0.20	-0.0003		-0.001
MEAN=	0.27	SD= 0.07	RSD= 25.9%	
45	0.33	-0.0001		-0.001
45	0.47	0.0002		-0.001
45	0.47	0.0002		-0.001
MEAN=	0.42	SD= 0.08	RSD= 19.0%	
46	0.61	0.0005		-0.001
46	0.76	0.0008		-0.002
46	0.65	0.0006		-0.001
MEAN=	0.67	SD= 0.08	RSD= 11.9%	
47	0.71	0.0007		-0.001
47	0.76	0.0008		0.000
47	0.88	-0.0011		-0.001
MEAN=	0.78	SD= 0.09	RSD= 11.5%	
48	0.98	0.0013		0.000
48	1.09	0.0015		0.001
48	1.22	0.0017		0.001
MEAN=	1.10	SD= 0.12	RSD= 10.9%	

49	1.04	0.0014			0.001
49	0.97	0.0012			0.000
49	1.00	0.0013			0.000
MEAN=	1.00	SD= 0.04	RSD= 4.0%		
50	0.24	-0.0002			-0.001
50	0.56	0.0004			0.000
50	0.71	0.0007			-0.001
50	0.64	0.0006			-0.002
MEAN=	0.64	SD= 0.08	RSD= 12.5%		
51	0.47	0.0002			-0.001
51	0.31	-0.0001			-0.001
51	0.30	-0.0001			0.000
MEAN=	0.36	SD= 0.10	RSD= 27.8%		
52	0.51	0.0003			-0.001
52	0.61	0.0005			-0.001
52	0.65	0.0006			-0.001
MEAN=	0.59	SD= 0.07	RSD= 11.9%		
53	0.78	0.0009			-0.001
53	0.75	0.0008			0.000
53	0.93	0.0012			-0.001
53	0.55	0.0004			-0.001
MEAN=	0.74	SD= 0.19	RSD= 25.7%		
54	0.35	0.0000			-0.001
54	0.65	0.0006			0.000
54	0.73	0.0008			-0.001
MEAN=	0.58	SD= 0.20	RSD= 34.5%		
55	0.49	0.0003			-0.001
55	0.48	0.0002			-0.001
55	0.47	0.0002			-0.001
MEAN=	0.48	SD= 0.01	RSD= 2.1%		
56	0.28	-0.0001			-0.001
56	0.42	0.0001			-0.001
56	0.41	0.0001			0.000
MEAN=	0.37	SD= 0.08	RSD= 21.6%		
57	0.40	0.0001			-0.001
57	0.48	0.0002			0.000
57	0.33	0.0000			0.000
MEAN=	0.40	SD= 0.08	RSD= 20.0%		
58	0.45	0.0002			-0.001
58	0.29	-0.0001			-0.001
58	0.32	-0.0001			0.000
MEAN=	0.35	SD= 0.09	RSD= 25.7%		
59	0.71	0.0007			0.000
59	1.85	0.0030			0.001
59	2.12	0.0035			0.001
MEAN=	1.56	SD= 0.75	RSD= 48.1%		
60	1.45	0.0022			0.001
60	1.27	0.0018			0.001
60	1.17	0.0016			0.001
MEAN=	1.30	SD= 0.14	RSD= 10.8%		

Lampiran 3: Perhitungan perolehan harga k_1 dan k_2 .

3.1) Perhitungan perolehan harga k_1 dan k_2 dengan konsentrasi awal $P_b = 5$ ppm.

```
***** MENU PILIHAN *****
*
*           1. MASUKAN VARIABEL AWAL           *
*           2. REVISI CONTROL PARAMETER        *
*           3. START OPTIMASI                  *
*           4. KELUAR                           *
*           5. SPARE                            *
*           6. DISPLAY PASANGAN DATA         *
*
*****
```

INPUT BILANGAN PERINTAH :? 6

I	INDEPENDEN	DEPENDEN
1	5.000000	1.100000
2	10.000000	1.550000
3	15.000000	1.760000
4	20.000000	1.880000
5	25.000000	1.940000

TEKAN SEMBARANG TOMBOL UNTUK KONTINU - READY :? *

```
5000 REM *****
5010 REM *           RESIDU UNTUK APROKSIMASI MODEL BIOAKUMULASI *
5011 REM *           KONSENTRASI AWAL= 5 PPM *
5012 REM *****
5020 M = 5
5030 L1 = 0
5035 FOR I = 1 TO M
5036 B = X(1)/X(2)*(1-EXP(-X(2)*S(I,1)))
5040 RA(I)= 5*B/(1+B)
5044 R(I)= RA(I) - S(I,2)
5045 REM CM = A - RA(I)
5050 NEXT I
5060 RETURN
7000 REM *****
7005 REM *           JAKOBIAN UNTUK M O D E L BIOAKUMULASI *
7010 REM *****
7020 M = 5
7035 FOR I = 1 TO M
7036 B = X(1)/X(2)*(1-EXP(-X(2)*S(I,1)))
7037 C= EXP(-X(2)*S(I,1))
7038 D = X(1)*(1-EXP(-X(2)*S(I,1)))
7039 E = 1-EXP(-X(2)*S(I,1))
7040 RA(I)= 5*B/(1+B)
7044 A(I,1)= (5*(1-C)*(X(2)+ D)- 5*X(1)*E^2)/((X(2)+X(1)*E)^2)
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```

7045 A(I,2)= (5*X(1)*C*(X(2)*S(I,1)+1) - 5*X(1))/((X(2)+X(1)*E)^2)
7055 REM CM = A - RA(I)
7056 NEXT I
7060 RETURN
7070 END

```

NO.	Yi OBSERVASI	Yi CALCULASI	R(i) RESIDU	SIMPANGAN BAKU NORMAL
1	110.00000D-02	109.84778D-02	0.15222D-02	0.39909D+00
2	155.00000D-02	155.32099D-02	-.32099D-02	-.84155D+00
3	176.00000D-02	175.68278D-02	0.31722D-02	0.83167D+00
4	188.00000D-02	188.23160D-02	-.23160D-02	-.60720D+00
5	194.00000D-02	193.89755D-02	0.10245D-02	0.26861D+00

```

TOTAL BILANGAN UNTUK EVALUASI FUNGSI = 7
HARGA MINIMAL DARI Q(X) = 1.454844931458865D-05
VARIANSI = 4.849483104862884D-05
STANDART DEVIASI = 2.202154E-03

```

ANALISIS HARGA VARIABEL

VARIABEL	AWAL	AKHIR	KEPERCAYAAN %
X(1)	100.0000D-02	729.8964D-04	-9.27D+01
X(2)	100.0000D-02	107.1277D-03	-8.93D+01
X(X)	204.2200D-02	145.4845D-07	-1.00D+02

TEKAN SEMBARANG TOMBOL UNTUK KONTINU - READY :?

DARI PERHITUNGAN DIPEROLEH HARGA:

$$k_1 = 0,07299, \quad k_2 = 0,10713$$

LAJU ABSORBSINYA:

$$\frac{dC_B}{dt} = 0,07299C_M - 0,10713C_B$$

3.2) Perhitungan perolehan harga k_1 dan k_2 dengan konsentrasi awal $P_b = 10$ ppm.

```
***** MENU PILIHAN *****
*
*           1. MASUKAN VARIABEL AWAL           *
*           2. REVISI CONTROL PARAMETER        *
*           3. START OPTIMASI                  *
*           4. KELUAR                           *
*           5. SPARE                            *
*           6. DISPLAY PASANGAN DATA         *
*
*****
```

INPUT BILANGAN PERINTAH :? 6

I	INDEPENDEN	DEPENDEN
1	5.000000	1.220000
2	10.000000	1.670000
3	15.000000	1.870000
4	20.000000	2.010000
5	25.000000	2.120000

TEKAN SEMBARANG TOMBOL UNTUK KONTINU - READY :?

```
5000 REM *****
5010 REM *           RESIDU UNTUK APROKSIMASI MODEL BIOAKUMULASI *
5011 REM *           KONSENTRASI AWAL= 10 PPM *
5012 REM *****
5020 M = 5
5030 L1 = 0
5035 FOR I = 1 TO M
5036 B = X(1)/X(2)*(1-EXP(-X(2)*S(I,1)))
5040 RA(I)= 5*B/(1+B)
5044 R(I)= RA(I) - S(I,2)
5045 REM CM = A - RA(I)
5050 NEXT I
5060 RETURN
7000 REM *****
7005 REM *           JAKOBIAN UNTUK M O D E L BIOAKUMULASI *
7010 REM *****
7020 M = 5
7035 FOR I = 1 TO M
7036 B = X(1)/X(2)*(1-EXP(-X(2)*S(I,1)))
7037 C= EXP(-X(2)*S(I,1))
7038 D = X(1)*(1-EXP(-X(2)*S(I,1)))
7039 E = 1-EXP(-X(2)*S(I,1))
7040 RA(I)= 5*B/(1+B)
7044 A(I,1)= (5*(1-C)*(X(2)+ D)- 5*X(1)*E^2)/((X(2)+X(1)*E)^2)
7045 A(I,2)= (5*X(1)*C*(X(2)*S(I,1)+1) - 5*X(1))/((X(2)+X(1)*E)^2)
7055 REM CM = A - RA(I)
7056 NEXT I
```

7060 RETURN
7070 END

NO.	Yi OBSERVASI	Yi CALCULASI	R(i) RESIDU	SIMPANGAN BAKU NORMAL
1	122.00000D-02	125.32902D-02	-.33290D-01	-.66206D+00
2	167.00000D-02	165.66135D-02	0.13187D-01	0.26225D+00
3	187.00000D-02	182.76320D-02	0.42368D-01	0.64260D+00
4	201.00000D-02	199.70557D-02	0.12944D-01	0.25743D+00
5	212.00000D-02	216.25672D-02	-.42567D-01	-.64656D+00

TOTAL BILANGAN UNTUK EVALUASI FUNGSI = 14
 HARGA MINIMAL DARI Q(X) = 2.528345161408652D-03
 VARIANSI = 8.427617204695505D-04
 STANDART DEVIASI = .0290307

ANALISIS HARGA VARIABEL

VARIABEL	AWAL	AKHIR	KEPERCAYAAN %
X(1)	100.0000D-02	372.3301D-04	-9.63D+01
X(2)	100.0000D-02	137.4195D-03	-8.63D+01
X(X)	261.4022D-01	252.8345D-05	-1.00D+02

TEKAN SEMBARANG TOMBOL UNTUK KONTINU - READY :?

DARI PERHITUNGAN DIPEROLEH HARGA:

$$k_1 = 0,037233, k_2 = 0,137419$$

LAJU ABSORBSINYA:

$$\frac{dC_B}{dt} = 0,037233C_A - 0,137419C_B$$

3.3) Perhitungan perolehan harga k_1 dan k_2 dengan konsentrasi awal $P_b = 15$ ppm.

```
***** MENU PILIHAN *****
*
*           1. MASUKAN VARIABEL AWAL           *
*           2. REVISI CONTROL PARAMETER        *
*           3. START OPTIMASI                  *
*           4. KELUAR                           *
*           5. SPARE                            *
*           6. DISPLAY PASANGAN DATA         *
*
*****
```

INPUT BILANGAN PERINTAH :? 6

I	INDEPENDEN	DEPENDEN
1	5.000000	1.220000
2	10.000000	1.670000
3	15.000000	1.870000
4	20.000000	2.010000
5	25.000000	2.120000

TEKAN SEMBARANG TOMBOL UNTUK KONTINU - READY :?

```
5000 REM *****
5010 REM *           RESIDU UNTUK APROKSIMASI MODEL BIOAKUMULASI *
5011 REM *           KONSENTRASI AWAL= 15 PPM *
5012 REM *****
5020 M = 5
5030 L1 = 0
5035 FOR I = 1 TO M
5036 B = X(1)/X(2)*(1-EXP(-X(2)*S(I,1)))
5040 RA(I)= 5*B/(1+B)
5044 R(I)= RA(I) - S(I,2)
5045 REM CM = A - RA(I)
5050 NEXT I
5060 RETURN
7000 REM *****
7005 REM *           JAKOBIAN UNTUK MODEL BIOAKUMULASI *
7010 REM *****
7020 M = 5
7035 FOR I = 1 TO M
7036 B = X(1)/X(2)*(1-EXP(-X(2)*S(I,1)))
7037 C= EXP(-X(2)*S(I,1))
7038 D = X(1)*(1-EXP(-X(2)*S(I,1)))
7039 E = 1-EXP(-X(2)*S(I,1))
7040 RA(I)= 5*B/(1+B)
7044 A(I,1)= (5*(1-C)*(X(2)+ D)- 5*X(1)*E^2)/((X(2)+X(1)*E)^2)
7045 A(I,2)= (5*X(1)*C*(X(2)*S(I,1)+1) - 5*X(1))/((X(2)+X(1)*E)^2)
7055 REM CM = A - RA(I)
7056 NEXT I
7060 RETURN
```

7070 END

NO.	Y1 OBSERVASI	Y1 CALCULASI	R(1) RESIDU	SIMPANGAN BAKU NORMAL
1	122.00000D-02	125.32902D-02	-.33290D-01	-.66206D+00
2	167.00000D-02	165.66135D-02	0.13187D-01	0.26225D+00
3	187.00000D-02	182.76320D-02	0.42368D-01	0.64260D+00
4	201.00000D-02	199.70557D-02	0.12944D-01	0.25743D+00
5	212.00000D-02	216.25672D-02	-.42567D-01	-.64656D+00

TOTAL BILANGAN UNTUK EVALUASI FUNGSI = 14
 HARGA MINIMAL DARI Q(X) = 2.528345161408652D-03
 VARIANSI = 8.427617204695505D-04
 STANDART DEVIASI = .0290307

ANALISIS HARGA VARIABEL

VARIABEL	AWAL	AKHIR	KEPERCAYAAN %
X(1)	100.0000D-02	372.3301D-04	-9.63D+01
X(2)	100.0000D-02	137.4195D-03	-8.63D+01
X(X)	261.4022D-01	252.8345D-05	-1.00D+02

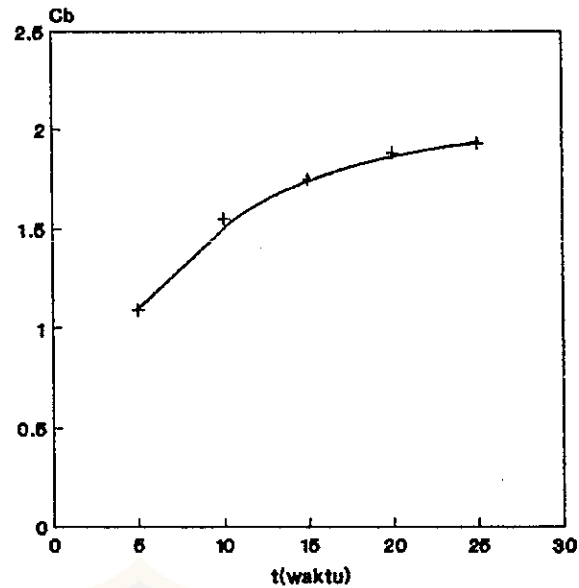
TEKAN SEMBARANG TOMBOL UNTUK KONTINU - READY :?

DARI PERHITUNGAN DIPEROLEH HARGA:

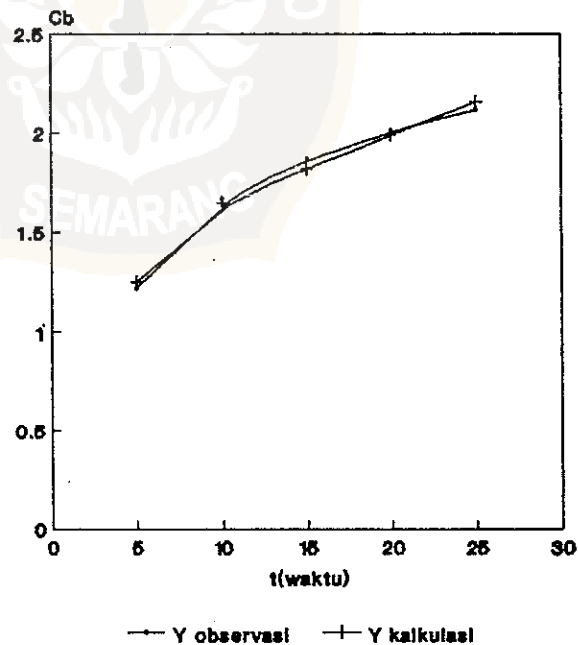
$$k_1 = 0,028598, k_2 = 0,16965$$

LAJU ABSORBSINYA:

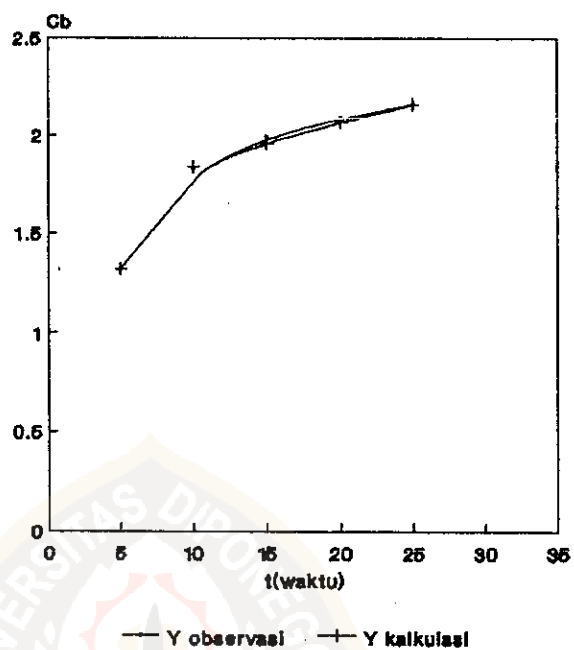
$$\frac{dC_B}{dt} = 0,028598C_M - 0,16965C_B$$



Grafik 1: Bioakumulasi timbal pada waktu t dengan konsentrasi ion Pb^{2+} awal = 5 ppm.



Grafik 1: Bioakumulasi timbal pada waktu t dengan konsentrasi ion Pb^{2+} awal = 10 ppm.



Grafik 3: Bioakumulasi timbal pada waktu t dengan konsentrasi ion Pb^{2+} awal= 15 ppm.

Lampiran 4: Pengukuran pH lumpur selama 25 hari

Hari ke:	Tanggal	Konsentrasi Pb di lumpur	Pengujian pH pada tanaman				
			I	II	III	IV	V
1.	15 Agustus 1996	5 ppm	8,15	7,79	8,33	7,72	7,79
		10 ppm	7,78	7,88	7,70	8,14	7,69
		15 ppm	7,79	7,88	7,75	7,74	8,21
2.	16 Agustus 1996	5 ppm	7,72	7,70	7,69	7,79	7,89
		10 ppm	7,81	7,60	7,75	7,44	7,90
		15 ppm	7,74	7,69	7,83	7,63	7,76
3.	17 Agustus 1996	5 ppm	7,58	7,42	7,64	7,47	7,48
		10 ppm	7,80	7,43	7,69	7,47	7,81
		15 ppm	7,58	7,57	7,63	7,49	7,81
4.	18 Agustus 1996	5 ppm	7,94	7,42	7,84	7,92	7,46
		10 ppm	7,63	7,52	7,94	7,65	7,56
		15 ppm	7,65	7,81	7,66	7,52	7,58
5.	19 Agustus 1996	5 ppm	7,67	7,71	7,90	7,87	7,69
		10 ppm	8,2	7,70	7,93	7,84	7,55
		15 ppm	7,85	7,96	7,87	7,86	7,94
6.	20 Agustus 1996	5 ppm	–	7,66	7,99	7,81	7,62
		10 ppm	–	7,64	7,55	7,64	7,69
		15 ppm	–	7,86	7,60	7,75	8,04
7.	21 Agustus 1996	5 ppm	–	7,44	7,82	7,60	7,68
		10 ppm	–	7,59	7,33	7,61	7,71
		15 ppm	–	7,40	7,58	7,66	7,64
8.	22 Agustus 1996	5 ppm	–	7,89	8,01	7,82	7,82
		10 ppm	–	7,60	7,79	7,91	7,49
		15 ppm	–	7,88	7,75	7,80	8,06
9.	23 Agustus 1996	5 ppm	–	7,69	7,83	7,78	7,67
		10 ppm	–	7,55	7,73	7,78	7,49
		15 ppm	–	7,73	7,92	7,70	7,69
10.	24 Agustus 1996	5 ppm	–	7,61	7,97	7,46	7,18
		10 ppm	–	7,85	7,45	7,33	7,67
		15 ppm	–	7,48	7,49	7,51	7,70
11.	25 Agustus 1996	5 ppm	–	–	7,84	7,65	7,78
		10 ppm	–	–	7,61	7,49	7,42
		15 ppm	–	–	7,74	7,60	7,50
12.	26 Agustus 1996	5 ppm	–	–	7,85	7,80	7,63
		10 ppm	–	–	7,82	7,65	7,56
		15 ppm	–	–	7,85	7,68	7,84
13.	27 Agustus 1996	5 ppm	–	–	8,10	7,74	7,72
		10 ppm	–	–	7,57	7,66	7,55
		15 ppm	–	–	7,61	7,63	7,62

14.	28 Agustus 1996	5 ppm	-	-	7,75	7,52	7,63
		10 ppm	-	-	7,37	7,57	7,72
		15 ppm	-	-	7,67	7,55	7,61
15.	29 Agustus 1996	5 ppm	-	-	7,85	7,88	7,63
		10 ppm	-	-	7,39	7,62	7,70
		15 ppm	-	-	7,65	7,60	7,66
16.	30 Agustus 1996	5 ppm	-	-	-	7,75	7,30
		10 ppm	-	-	-	7,79	7,67
		15 ppm	-	-	-	7,69	7,26
17.	31 Agustus 1996	5 ppm	-	-	-	7,65	7,34
		10 ppm	-	-	-	7,61	7,69
		15 ppm	-	-	-	7,67	7,45
18.	1 September 1996	5 ppm	-	-	-	7,65	7,50
		10 ppm	-	-	-	7,58	7,60
		15 ppm	-	-	-	7,69	7,60
19.	2 September 1996	5 ppm	-	-	-	7,71	7,77
		10 ppm	-	-	-	7,59	7,75
		15 ppm	-	-	-	7,69	7,89
20.	3 September 1996	5 ppm	-	-	-	7,72	7,70
		10 ppm	-	-	-	7,46	7,54
		15 ppm	-	-	-	7,71	7,76
21.	4 September 1996	5 ppm	-	-	-	-	7,85
		10 ppm	-	-	-	-	7,71
		15 ppm	-	-	-	-	7,87
22.	5 September 1996	5 ppm	-	-	-	-	7,48
		10 ppm	-	-	-	-	7,55
		15 ppm	-	-	-	-	7,70
23.	6 September 1996	5 ppm	-	-	-	-	7,40
		10 ppm	-	-	-	-	7,57
		15 ppm	-	-	-	-	7,60
24.	7 September 1996	5 ppm	-	-	-	-	7,24
		10 ppm	-	-	-	-	7,62
		15 ppm	-	-	-	-	7,49
25.	8 September 1996	5 ppm	-	-	-	-	7,53
		10 ppm	-	-	-	-	7,57
		15 ppm	-	-	-	-	7,49