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APPENDICES

APPENDIX A

Calibration curve of MT

A calibration curve of MT was developed using solutions with concentrations of 0.01, 0.1, 1.0, 5.0 and 10.0 mg/l, and analyzed using a High-Performance Liquid Chromatography (HPLC 1100 series, Agilent Technologies, Palo Alto, CA, USA) with an ODS Hypersil, 250 mm x 5 mm x 4.6 µm column at a flow rate of 0.5 ml/min. The column temperature was at 40.0 ± 0.5°C. MT was dissolved in methanol. A water–acetonitrile gradient (80:20 (v/v) at time t = 0 min, 4:96 at t = 19 min, and 80:20 at t = 20 min) was used as the mobile phase. A 10 min post run time was used to equilibrate the column. MT was detected at 245 nm (bandwidth 4 nm) for quantification and 255 nm (bandwidth 4 nm) as qualifier using a diode array detector (DAD). The injection sample volume was 50 µl (Marwah and Lardy, 2005). The calibration equation was Y = 313X with $R^2 = 0.9992$.

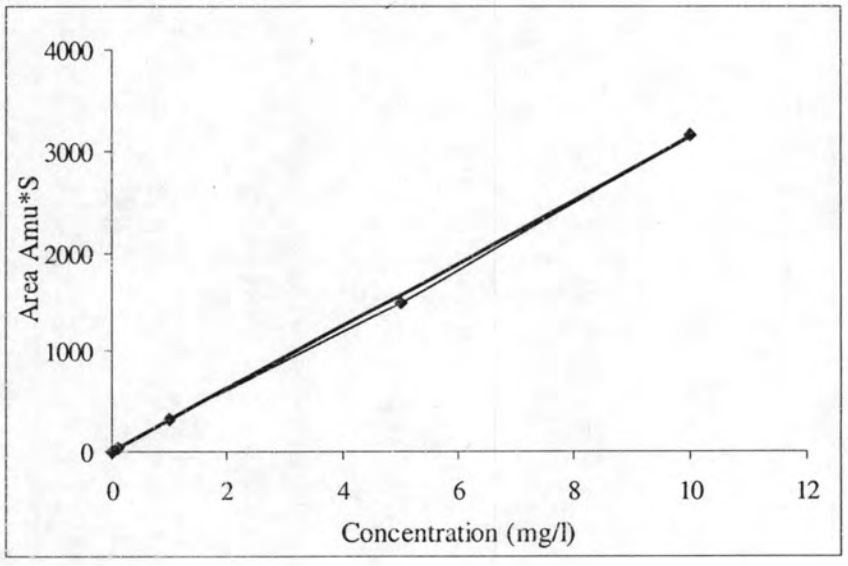


Figure A-1 A calibration curve of MT

APPENDIX B

Table B-1 Raw data for MT degradation using aerobic sludge at an initial MT concentration of 0.3 mg/l under aerobic condition

Time	**Aerobic Sludge**						**Control**		**Recovery**	
Day	Area		Conc		Conc*	SD	Area	Conc.	Area	Conc.
0.0	52.6	50.5	0.336	0.322	***0.329***	**0.009**	53.2	***0.340***	56.0	***0.358***
0.5	40.1	36.7	0.256	0.235	***0.246***	**0.015**	-	-	-	-
1.0	10.1	7.3	0.065	0.047	***0.056***	**0.013**	56.7	***0.362***	49.7	***0.318***
1.5	5. 2	ɔ. 0	0.033	0.032	***0.033***	**0.001**	-	-	-	-
2.0	4.7	3.3	0.030	0.021	***0.025***	**0.006**	48.9	***0.313***	51.4	***0.329***
10.0	0.0	0.0	0.000	0.000	***0.000***	**0.000**	56.7	***0.362***	49.7	***0.318***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-2 Raw data for MT degradation using aerobic sludge at an initial MT concentration of 1.0 mg/l under aerobic condition

Time	**Aerobic Sludge**						**Control**		**Recovery**	
Day	Area		Conc.		Conc.*	SD	Area	Conc.	Area	Conc.
0.0	213.0	193.6	1.361	1.237	***1.299***	**0.088**	200.1	***1.279***	199.4	***1.274***
1.5	150.0	144.6	0.958	0.924	***0.941***	**0.024**	-	-	-	-
2.5	129.5	125.3	0.827	0.800	***0.814***	**0.019**	-	-	-	-
4.0	94.1	89.1	0.601	0.569	***0.585***	**0.023**	-	-	-	-
5.0	72.4	64.1	0.463	0.409	***0.436***	**0.038**	198.4	***1.268***	200.6	***1.282***
6.0	6.4	3.8	0.041	0.024	***0.033***	**0.012**	-	-	-	-
8.0	3.6	2.4	0.023	0.015	***0.019***	**0.005**	-	-	-	-
10.0	1.4	1.4	0.009	0.009	***0.009***	**0.000**	194.3	***1.242***	176.4	***1.127***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Tale B-3 Raw data for MT degradation using aerobic sludge at an initial MT concentration of 5.0 mg/l under aerobic condition

Time	Aerobic Sludge						Control		Recovery	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc
0.0	811.7	804.7	5.187	5.142	***5.142***	**0.032**	799.9	***5.111***	822.1	***5.253***
2.0	702.5	677.7	4.489	4.330	***4.409***	**0.112**	-	-	-	-
4.0	495.3	448.7	3.165	2.867	***3.016***	**0.211**	-	-	-	-
5.0	421.5	401.3	2.693	2.565	***2.629***	**0.091**	-	-	-	-
6.0	-	-	-	-	-	-	844.7	***5.397***	807.3	***5.158***
8.0	94.3	88.5	0.603	0.565	***0.584***	**0.026**	-	-	-	-
10.0	63.1	48.4	0.403	0.309	***0.356***	**0.066**	-	-	-	-
12.0	9.8	8.4	0.063	0.054	***0.058***	**0.006**	-	-	-	-
14.0	7.2	6.0	0.046	0.038	***0.042***	**0.006**	-	-	-	-
18.0	8.9	4.0	0.057	0.026	***0.041***	**0.022**	800.2	***5.113***	841.9	***5.380***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-4 Raw data for MT degradation using aerobic sludge at an initial MT concentration of 7.0 mg/l under aerobic condition

Time	Aerobic Sludge						Control		Recovery	
Day	Area		Conc		Conc	SD	Area	Conc	Area	Conc
0.0	1100.4	1100.1	7.031	7.029	***7.030***	**0.001**	1123.4	***7.178***	1111.9	***7.105***
1.0	1004.9	986.0	6.421	6.300	***6.361***	**0.085**	-	-	-	-
2.0	994.0	875.0	6.351	5.591	***5.971***	**0.538**	-	-	-	-
4.0	669.3	614.9	4.277	3.929	***4.103***	**0.246**	-	-	-	-
5.0	621.5	596.0	3.971	3.808	***3.890***	**0.115**	-	-	-	-
6.0	-	-	-	-	-	-	1153.3	***7.369***	1113.0	***7.112***
8.0	299.1	233.2	1.911	1.490	***1.700***	**0.298**	-	-	-	-
14.0	112.6	108.0	0.719	0.690	***0.705***	**0.021**	-	-	-	-
18.0	11.2	9.8	0.072	0.062	***0.067***	**0.007**	-	-	-	-
20.0	5.9	4.1	0.038	0.026	***0.032***	**0.008**	1129.3	***7.216***	1142.1	***7.298***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-5 Raw data for MT degradation using aerobic sludge at an initial MT concentration of 10.0 mg/l under aerobic condition

Time	Aerobic Sludge						Control		Recovery	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc
0.0	1600.8	1570.0	10.229	10.032	***10.130***	**0.139**	1600.8	***10.229***	1622.2	***10.365***
2.0	1495.0	1472.9	9.553	9.411	***9.482***	**0.100**	-	-	-	-
4.0	1238.0	1218.0	8.166	7.598	***7.850***	**0.090**	-	-	-	-
5.0	1065.0	1051.2	7.000	6.589	***6.760***	**0.062**	-	-	-	-
6.0	-	-	-	-	-	-	1618.6	***10.342***	1599.9	***10.223***
8.0	500.0	479.0	3.335	2.933	***3.128***	**0.095**	-	-	-	-
10.0	65.7	63.5	0.789	0.036	***0.413***	**0.001**	-	-	-	-
14.0	23.5	21.0	0.253	0.032	***0.142***	**0.011**	-	-	-	-
16.0	36.1	34.6	0.231	0.221	***0.226***	**0.007**	-	-	-	-
18.0	39.9	27.4	0.255	0.175	***0.215***	**0.057**	-	-	-	-
20.0	16.5	3.9	0.106	0.025	***0.065***	**0.057**	1587.5	***10.144***	1499.3	***9.580***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-6 Raw data for MT degradation using sediment at an initial MT concentration of 0.3 mg/l under aerobic condition

Time	Aerobic Sediment						Control		Recovery	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc
0.0	53.700	53.100	0.343	0.339	***0.341***	**0.003**	50.900	***0.325***	49.300	***0.315***
1.0	39.900	32.100	0.255	0.205	***0.230***	**0.035**	-	-	-	-
1.5	-	-	-	-	-		48.300	***0.309***	49.100	***0.314***
2.0	39.800	30.000	0.254	0.192	***0.223***	**0.044**	-	-	-	-
3.0	13.400	11.300	0.086	0.072	***0.079***	**0.010**	-	-	-	-
4.0	9.100	7.700	0.058	0.049	***0.054***	**0.006**	-	-	-	-
5.0	4.700	4.000	0.030	0.026	***0.028***	**0.003**	59.200	***0.378***	41.700	***0.266***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-7 Raw data for MT degradation using sediment at an initial MT concentration of 1.0 mg/l under aerobic condition

Time	Aerobic Sediment						Control		Recovery	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc
0.0	199.3	176.9	1.274	1.130	***1.202***	**0.101**	218.6	***1.397***	207.8	***1.328***
1.0	163.4	138.9	1.044	0.888	***0.966***	**0.111**	-	-	-	-
2.0	152.3	142.3	0.973	0.909	***0.941***	-	-	-	-	-
4.0	111.4	103.1	0.712	0.659	***0.685***	**0.038**	-	-	-	-
5.0	87.6	83.5	0.560	0.534	***0.547***	**0.019**	-	-	-	-
6.0	74.1	60.8	0.474	0.389	***0.431***	**0.060**	220.4	***1.408***	202.8	***1.296***
10.0	59.6	22.6	0.381	0.145	***0.263***	**0.167**	-	-	-	-
12.0	9.3	6.3	0.059	0.040	***0.050***	**0.013**	-	-	-	-
16.0	6.7	2.0	0.043	0.013	***0.028***	**0.021**	211.4	***1.351***	215.0	***1.374***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-8 Raw data for MT degradation using sediment at an initial MT concentration of 5.0 mg/l under aerobic condition

Time	Aerobic Sediment						Control		Recovery	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc
0.0	811.3	810.9	5.184	5.182	***5.183***	**0.002**	809.4	***5.172***	834.3	***5.331***
1.0	750.4	749.5	4.795	4.789	***4.792***	**0.004**	-	-	-	-
2.0	713.9	706.0	4.562	4.511	***4.537***	**0.036**	-	-	-	-
5.0	640.2	637.2	4.091	4.071	***4.081***	**0.014**	-	-	-	-
6.0	513.8	450.2	3.283	2.877	***3.080***	**0.287**	918.9	***5.872***	823.3	***5.261***
10.0	208.5	200.5	1.333	1.281	***1.307***	**0.036**	-	-	-	-
14.0	180.4	91.4	1.153	0.584	***0.868***	**0.402**	-	-	-	-
18.0	41.7	29.1	0.267	0.186	***0.226***	**0.057**	-	-	-	-
20.0	14.9	11.1	0.095	0.071	***0.083***	**0.017**	-	-	-	-
23.0	8.6	5.0	0.055	0.032	***0.043***	**0.016**	860.2	***5.497***	872.5	***5.575***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-9 Raw data for MT degradation using sediment at an initial MT concentration of 7.0 mg/l under aerobic condition

Time	Aerobic Sediment						Control		Recovery	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc
0.0	1164.3	1102.9	7.440	7.047	***7.243***	**0.278**	1142.3	***7.299***	1134.1	***7.247***
3.0	995.2	956.3	6.359	6.110	***6.235***	**0.176**	-	-	-	-
5.0	855.4	816.0	5.466	5.214	***5.340***	**0.178**	-	-	-	-
6.0	-	-	-	-	-	-	1153.3	***7.369***	1112.1	***7.106***
8.0	571.7	396.8	3.653	2.535	***3.094***	**0.791**	-	-	-	-
12.0	343.7	298.5	2.196	1.908	***2.052***	**0.204**	-	-	-	-
14.0	405.7	205.9	2.592	1.316	***1.954***	**0.903**	-	-	-	-
18.0	150.0	142.4	0.959	0.910	***0.934***	**0.034**	-	-	-	-
20.0	102.3	83.1	0.654	0.531	***0.592***	**0.087**	-	-	-	-
23.0	12.2	11.7	0.078	0.075	***0.076***	**0.002**	-	-	-	-
26.0	9.9	4.7	0.063	0.030	***0.047***	**0.023**	1108.9	***7.086***	1173.7	***7.500***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-10 Raw data for MT degradation using sediment at an initial MT concentration of 10.0 mg/l under aerobic condition

Time	Aerobic Sediment						Control		Recovery	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc
0.0	1563.1	1557.2	9.988	9.950	***9.969***	**0.027**	1602.2	***10.238***	1588.3	***10.149***
2.0	1406.4	1398.7	8.986	8.937	***8.962***	**0.035**	-	-	-	-
5.0	1453.6	1329.5	9.288	8.495	***8.892***	**0.560**	-	-	-	-
6.0	-	-	-	-	-	-	1642.8	***10.497***	1599.3	***10.219***
8.0	1249.0	1242.6	7.981	7.940	***7.960***	**0.029**	-	-	-	-
10.0	1151.3	923.1	7.357	5.898	***6.627***	**1.031**	-	-	-	-
12.0	908.2	763.7	5.803	4.880	***5.342***	**0.653**	-	-	-	-
16.0	581.1	566.1	3.713	3.618	***3.665***	**0.068**	-	-	-	-
18.0	382.8	336.1	2.446	2.148	***2.297***	**0.211**	-	-	-	-
24.0	138.7	113.1	0.886	0.723	***0.805***	**0.115**	-	-	-	-
28.0	84.0	78.6	0.537	0.502	***0.519***	**0.024**	-	-	-	-
32.0	9.8	8.4	0.062	0.054	***0.058***	**0.006**	1584.1	***10.122***	1631.7	***10.426***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-11 Raw data for MT degradation using anaerobic sludge at an initial MT concentration of 0.1 mg/l under anaerobic condition

Time	**Anaerobic Sludge**						**Control**		**Recovery**	
Day	Area		Conc.		Conc*	SD	Area	Conc	Area	Conc.
0.0	15.9	15.0	0. 101	0. 096	***0.099***	**0.004**	17.0	***0.109***	16.6	***0.106***
5.0	6.8	6.4	0.043	0.041	***0.042***	**0.002**	-	-	-	-
10.0	2.4	2.2	0.016	0.014	***0.015***	**0.001**	16.9	***0.108***	17.6	***0.113***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-12 Raw data for MT degradation using anaerobic sludge at an initial MT concentration of 1.0 mg/l under anaerobic condition

Time	**Anaerobic Sludge**						**Control**		**Recovery**	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc
0.0	140.4	124.0	1.077	0.951	***1.014***	**0.089**	134.9	***1.000***	129.83	***0.995***
5.0	50.1	41.1	0.384	0.315	***0.350***	**0.049**	-	-	-	-
10.0	37.8	27.0	0.284	0.213	***0.248***	**0.050**	142.6	***1.100***	108.22	***0.830***
15.0	4.7	4.5	0.036	0.035	***0.035***	**0.001**	-	-	-	-
20.0	3.7	3.6	0.029	0.028	***0.028***	**0.001**	-	-	-	-
25.0	4.3	3.3	0.033	0.025	***0.029***	**0.005**	-	-	-	-
30.0	3.4	2.8	0.026	0.021	***0.024***	**0.003**	-	-	-	-
35.0	2.9	2.6	0.022	0.020	***0.021***	**0.001**	111.3	***0.900***	133.37	***1.023***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-13 Raw data for MT degradation using anaerobic sludge at an initial MT concentration of 3.0 mg/l under anaerobic condition

Time	Anaerobic Sludge						Control		Recovery	
Day	Area		Conc.		Conc	SD	Area	Conc	Area	Conc.
0.0	406.3	399.8	3.116	3.065	***3.091***	**0.036**	412.2	***3.161***	400.9	***3.074***
5.0	96.6	94.8	0.741	0.727	***0.734***	**0.009**	-	-	-	-
10.0	30.7	21.3	0.235	0.164	***0.200***	**0.051**	421.5	***3.232***	411.6	***3.156***
15.0	3.8	3.5	0.029	0.027	***0.028***	**0.002**	-	-	-	-
20.0	4.1	3.1	0.032	0.024	***0.028***	**0.006**	-	-	-	-
25.0	3.1	3.0	0.024	0.023	***0.023***	**0.001**	-	-	-	-
30.0	2.8	2.7	0.022	0.020	***0.021***	**0.001**	-	-	-	-
35.0	2.6	2.3	0.020	0.018	***0.019***	**0.001**	409.2	***3.138***	388.9	***2.982***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-14 Raw data for MT degradation using anaerobic sludge at an initial MT concentration of 5.0 mg/l under anaerobic condition

Time	Anaerobic Sludge						Control		Recovery	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc
0.0	672.0	619.8	5.153	4.752	***4.953***	**0.283**	657.9	***5.044***	633.3	***4.856***
5.0	285.0	244.0	2.186	1.871	***2.028***	**0.223**	-	-	-	-
10.0	92.4	64.3	0.709	0.493	***0.601***	**0.152**	701.5	***5.379***	671.6	***5.150***
15.0	45.6	39.6	0.349	0.303	***0.326***	**0.033**	-	-	-	-
20.0	34.6	32.9	0.265	0.252	***0.259***	**0.009**	-	-	-	-
25.0	26.0	22.5	0. 200	0. 172	***0.186***	**0.019**	-	-	-	-
30.0	19.1	15.8	0.146	0.121	***0.134***	**0.018**	-	-	-	-
35.0	13.2	11.9	0.102	0.091	***0.096***	**0.008**	660.4	***5.064***	630.0	***4.831***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-15 Raw data for MT degradation using anaerobic sludge at an initial MT concentration of 10.0 mg/l under anaerobic condition

Time	**Anaerobic Sludge**						**Control**		**Recovery**	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	conc.
0.0	1581.4	1547.4	10.105	9.888	***9.996***	**0.154**	1582.9	***10.114***	1527.9	***9.763***
5.0	952.3	930.1	6.085	5.943	***6.014***	**0.100**	-	-	-	-
10.0	826.7	734.1	5.282	4.691	***4.986***	**0.418**	1547.3	***9.887***	1265.6	***8.087***
15.0	754.1	727.6	4.818	4.649	***4.734***	**0.120**	-	-	-	-
20.0	318.8	220.1	2.037	1.406	***1.722***	**0.446**	-	-	-	-
25.0	160.8	133.8	1.028	0.855	***0.941***	**0.122**	-	-	-	-
30.0	87.0	75.9	0.556	0.485	***0.521***	**0.050**	-	-	-	-
35.0	35.9	33.4	0.229	0.213	***0.221***	**0.011**	1478.3	***9.446***	1447.6	***9.250***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-16 Raw data for MT degradation using sediment at an initial MT concentration of 0.1 mg/l under anaerobic condition

Time	**Anaerobic Sediment**						**Control**		**Recovery**	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc
0.0	15.9	15.8	0.102	0.101	***0.101***	**0.000**	16.0	***0.102***	15.9	***0.102***
5.0	6.4	5.2	0.041	0.033	***0.037***	**0.006**	-	-	-	-
10.0	8.8	7.8	0.056	0.050	***0.053***	**0.004**	16.9	***0.108***	15.8	***0.101***
15.0	4.0	2.3	0.026	0.015	***0.020***	**0.008**	15.8	***0.101***	15.0	***0.096***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-17 Raw data for MT degradation using sediment at an initial MT concentration of 1.0 mg/l under anaerobic condition

Time	**Anaerobic Sediment**						**Control**		**Recovery**	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc
0.0	145.0	131.3	1.112	1.007	***1.059***	**0.074**	150.2	***1.152***	127.9	***0.981***
5.0	13.5	10.3	0.104	0.079	***0.091***	**0.018**	-	-	-	-
10.0	4.6	4.4	0.035	0.033	***0.034***	**0.001**	142.6	***1.093***	112.5	***0.863***
15.0	3.5	3.2	0.027	0.025	***0.026***	**0.002**	-	-	-	-
20.0	3.8	2.3	0.029	0.017	***0.023***	**0.009**	-	-	-	-
25.0	3.1	2.9	0.024	0.022	***0.023***	**0.001**	-	-	-	-
30.0	2.9	2.9	0.022	0.022	***0.022***	**0.000**	-	-	-	-
35.0	3.0	2.9	0.023	0.022	***0.023***	**0.000**	128.1	***0.982***	125.0	***0.959***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-18 Raw data for MT degradation using sediment at an initial MT concentration of 3.0 mg/l under anaerobic condition

Time	**Anaerobic Sediment**						**Control**		**Recovery**	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc
0.0	411.8	383.9	3.158	2.944	***3.051***	**0.151**	398.1	***3.052***	400.0	***3.067***
5.0	14.8	11.3	0.114	0.087	***0.100***	**0.019**	-	-	-	-
10.0	15.7	14.4	0.121	0.110	***0.115***	**0.007**	397.4	***3.047***	411.1	***3.152***
15.0	12.3	10.7	0.095	0.082	***0.088***	**0.009**	-	-	-	-
20.0	8.3	5.8	0.064	0.044	***0.054***	**0.014**	-	-	-	-
25.0	9.3	8.9	0.071	0.068	***0.070***	**0.002**	-	-	-	-
30.0	7.9	6.5	0.061	0.049	***0.055***	**0.008**	-	-	-	-
35.0	8.8	5.4	0.068	0.042	***0.055***	**0.018**	409.2	***3.138***	268.3	***2.057***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-19 Raw data for MT degradation using sediment at an initial MT concentration of 5.0 mg/l in anaerobic condition

Time	Anaerobic Sediment						Control		Recovery	
Day	Area		Conc.		Conc.*	SD	Area	Conc	Area	Conc.
0.0	689.2	656.2	5.285	5.032	***5.158***	**0.179**	639.9	***4.907***	652.0	***5.000***
5.0	178.7	109.7	1.370	0.841	***1.106***	**0.374**	-	-	-	-
10.0	88.2	21.9	0.676	0.168	***0.422***	**0.360**	677.7	***5.196***	631.1	***4.839***
15.0	48.6	10.4	0.373	0.080	***0.226***	**0.207**	-	-	-	-
20.0	26.6	16.3	0.204	0.125	***0.165***	**0.056**	-	-	-	-
25.0	11.9	10.9	0.091	0.083	***0.087***	**0.005**	-	-	-	-
30.0	10.0	9.7	0.077	0.074	***0.075***	**0.002**	-	-	-	-
35.0	9.9	8.1	0.076	0.062	***0.069***	**0.010**	670.0	***5.137***	658.4	***5.048***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-20 Raw data for MT degradation using sediment at an initial MT concentration of 10.0 mg/l under anaerobic condition

Time	Anaerobic Sediment						Control		Recovery	
Day	Area		Conc		Conc*	SD	Area	Conc	Area	Conc.
0.0	1638.2	1620.9	10.468	10.357	***10.412***	**0.078**	1599.0	***10.217***	1583.320	***10.117***
5.0	1253.1	1100.7	8.007	7.033	***7.520***	**0.689**	-	-	-	-
10.0	799.5	554.8	5.109	3.545	***4.327***	**1.106**	1477.7	***9.442***	1698.557	***10.853***
15.0	556.1	518.8	3.554	3.315	***3.315***	**0.169**	-	-	-	-
20.0	276.8	231.0	1.769	1.476	***1.623***	**0.207**	-	-	-	-
25.0	200.4	179.0	1.280	1.144	***1.212***	**0.096**	-	-	-	-
30.0	188.3	138.0	1.203	0.882	***1.043***	**0.227**	-	-	-	-
35.0	154.5	124.5	0.987	0.795	***0.891***	**0.136**	1478.3	***9.446***	1592.708	***10.177***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-21 Raw data for MT degradation using bacteria strain 3/10 at an initial MT concentration of 3.0 mg/l

Time	**Degrade**						**Control**	
hr	Area		Conc		Conc*	SD	Area	Conc
0.0	589.8	587.8	3.169	3.156	***3.162***	**0.009**	575.8	***3.079***
12.0	569.4	544.8	3.038	2.881	***2.960***	**0.111**	-	-
16.0	571	525.2	3.049	2.756	***2.902***	**0.207**	-	-
24.0	565.1	548.6	3.011	2.905	***2.958***	**0.075**	573.0	***3.061***
36.0	398.8	388.9	1.948	1.885	***1.917***	**0.045**	-	-
48.0	308.3	289.3	1.370	1.249	***1.309***	**0.086**	-	-
60.0	307.4	296.8	1.364	1.296	***1.330***	**0.048**	569.0	***3.036***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-22 Raw data for MT degradation using bacteria strain 3/10 at an initial MT concentration of 10.0 mg/l

Time	**Degrade**						**Control**	
hr	Area		Conc		Conc*	SD	Area	Conc
0.0	1706.6	1700.6	11.357	11.300	***11.328***	**0.041**	1699.0	***11.284***
8.0	1558.0	1527.0	9.933	9.636	***9.784***	**0.210**	-	-
16.0	1611.9	1609.0	10.450	10.422	***10.436***	**0.020**	-	-
36.0	1599.8	1578.9	10.334	10.133	***10.233***	**0.142**	-	-
40.0	1584.2	1582.2	10.184	10.165	***10.174***	**0.014**	-	-
48.0	1049.6	1045.6	5.060	5.022	***5.041***	**0.027**	1686.5	***11.165***
60.0	1050.7	1042.2	5.071	4.989	***5.030***	**0.058**	-	-
68.0	1051.0	1048.1	5.073	5.046	***5.060***	**0.020**	1654.9	***10.862***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-23 Raw data for MT degradation using bacteria strain 3/10 at an initial MT concentration of 15.0 mg/l

Time	Degrade						Control	
hr	Area		Conc		Conc*	SD	Area	Conc
0.0	1529.4	1524.4	14.659	14.611	***14.635***	**0.034**	1530.0	***14.665***
12.0	1566.7	1557	15.016	14.923	***14.970***	**0.066**	-	-
16.0	1448.9	1421	13.887	13.620	***13.754***	**0.189**	-	-
24.0	1335.4	1304.5	12.799	12.503	***12.651***	**0.209**	-	-
48.0	789.7	765.8	7.569	7.340	***7.454***	**0.162**	1576.8	***15.113***
56.0	764.8	760.8	7.330	7.292	***7.311***	**0.027**	-	-
68.0	759.3	757.3	7.278	7.258	***7.268***	**0.014**	1563.8	***14.988***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-24 Raw data for MT degradation using bacteria strain 3/10 at an initial MT concentration of 115.0 mg/l

Time	Degrade						Control	
hr	Area		Conc		Conc*	SD	Area	Conc
0.0	12029.2	12003.0	115.296	115.045	***115.170***	**0.178**	12009.0	***115.102***
12.0	12010.4	12006.4	115.116	115.077	***115.096***	**0.027**	-	-
16.0	12062.4	12052.4	115.614	115.518	***115.566***	**0.068**	-	-
24.0	10330.7	10297.8	99.016	98.701	***98.859***	**0.223**	-	-
32.0	9912.0	9907.7	95.003	94.962	***94.983***	**0.029**	-	-
40.0	9326.0	9319.4	89.387	89.323	***89.355***	**0.045**	-	-
44.0	8045.0	8043.1	77.109	77.090	***77.100***	**0.013**	-	-
48.0	4633.8	4598.3	44.413	44.073	***44.243***	**0.241**	12000.1	***115.017***
52.0	4445.5	4345.5	42.609	41.650	***42.129***	**0.678**	-	-
60.0	4435.9	4405.9	42.517	42.229	***42.373***	**0.203**	11998.4	***115.001***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-25 Raw data for MT degradation using bacteria strain 1/100 at an initial MT concentration of 3.0 mg/l

Time	Degrade						Control	
hr	Area		Conc		Conc*	SD	Area	Conc
0.0	597.2	587.8	3.216	3.156	***3.186***	**0.042**	575.8	***3.079***
12.0	569.4	544.8	3.038	2.881	***2.960***	**0.111**	-	-
16.0	571	560.2	3.049	2.980	***3.014***	**0.049**	-	-
24.0	548.6	545.1	2.905	2.883	***2.894***	**0.016**	573.0	***3.061***
36.0	458.8	418.9	2.332	2.077	***2.204***	**0.180**	-	-
48.0	396.3	386.3	1.932	1.868	***1.900***	**0.045**	-	-
60.0	403.4	392.8	1.978	1.910	***1.944***	**0.048**	569.0	***3.036***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-26 Raw data for MT degradation using bacteria strain 1/100 at an initial MT concentration of 10.0 mg/l

Time	Degrade						Control	
hr	Area		Conc		Conc*	SD	Area	Conc
0.0	1726.6	1706.6	11.549	11.357	***11.453***	**0.136**	1699.0	***11.284***
8.0	1548.0	1527.0	9.837	9.636	***9.736***	**0.142**	-	-
16.0	1611.9	1609.0	10.450	10.422	***10.436***	**0.020**	-	-
36.0	1599.8	1578.9	10.334	10.133	***10.233***	**0.142**	-	-
40.0	1584.2	1571.2	10.184	10.059	***10.122***	**0.088**	-	-
48.0	1230.6	1209.6	6.795	6.594	***6.694***	**0.142**	1686.5	***11.165***
60.0	1152.2	1150.0	6.043	6.022	***6.033***	**0.015**	-	-
68.0	1151.0	1148.1	6.032	6.004	***6.018***	**0.020**	1654.9	***10.862***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-27 Raw data for MT degradation using bacteria strain 1/100 at an initial MT concentration of 15.0 mg/l

Time	Degrade						Control	
hr	Area		Conc		Conc*	SD	Area	Conc
0.0	1529.4	1522.4	14.659	14.592	***14.625***	**0.047**	1530.0	***14.665***
12.0	1566.7	1557.0	15.016	14.923	***14.970***	**0.066**	-	-
16.0	1501.0	1492.9	14.387	14.309	***14.348***	**0.055**	-	-
24.0	1330.4	1304.5	12.751	12.503	***12.627***	**0.176**	-	-
48.0	915.8	909.7	8.778	8.719	***8.748***	**0.041**	1576.8	***15.113***
56.0	900.8	897.8	8.634	8.605	***8.619***	**0.020**	-	-
68.0	907.3	901.4	8.696	8.640	***8.668***	**0.040**	1563.8	***14.988***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-28 Raw data for MT degradation using bacteria strain 1/100 at an initial MT concentration of 115.0 mg/l

Time	Degrade						Control	
hr	Area		Conc		Conc*	SD	Area	Conc
0.0	12089.2	12073.0	115.871	115.716	***115.793***	**0.110**	12009.0	***115.102***
12.0	12010.4	12000.4	115.116	115.020	***115.068***	**0.068**	-	-
16.0	12010.4	12002.4	115.116	115.039	***115.077***	**0.054**	-	-
24.0	10507.7	10490.8	100.713	100.551	***100.632***	**0.115**	-	-
32.0	9912.0	9907.7	95.003	94.962	***94.983***	**0.029**	-	-
40.0	9326.0	9319.4	89.387	89.323	***89.355***	**0.045**	-	-
44.0	8043.1	8045.0	77.109	77.090	***77.100***	**0.013**	-	-
48.0	6090.8	6088.3	58.378	58.354	***58.366***	**0.017**	12000.1	***115.017***
52.0	6045.5	6045.5	57.944	57.944	***57.944***	**0.000**	-	-
60.0	6045.5	6005.9	57.565	57.944	***57.754***	**0.268**	11998.4	***115.001***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-29 Raw data for MT degradation using bacteria strain 3/100 at an initial MT concentration of 100.0 mg/l

Time	Degrade						Control	
hr	Area		Conc		Conc*	SD	Area	Conc
0.0	1099.0	1102.0	105.623	105.335	***105.479***	**0.203**	1109.9	***10.638***
4.0	998.2	974.5	95.674	93.403	***94.538***	**1.606**	-	-
8.0	822.6	808.7	78.843	77.511	***78.177***	**0.942**	-	-
12.0	647.8	634.1	62.089	60.776	***61.433***	**0.929**	-	-
16.0	546.0	533.0	52.332	51.086	***51.709***	**0.881**	-	-
20.0	384.3	374.8	36.834	35.923	***36.379***	**0.644**	-	-
24.0	359.3	355.6	34. 438	34.083	***34.260***	**0.251**	-	-
32.0	159.5	153.9	15.288	14.751	***15.019***	**0.380**	-	-
40.0	149.7	146.8	14.348	14. 070	***14.209***	**0.197**	-	-
48.0	128.3	126.2	12.297	12.096	***12.196***	**0.142**	1094.4	***10.489***
56.0	97.3	96.2	9.326	9.220	***9.273***	**0.075**	-	-
60.0	77.5	73.9	7.428	7.083	***7.256***	**0.244**	-	-
68.0	5.1	4.8	0.489	0.460	***0.474***	**0.020**	1073.7	***10.291***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

Table B-30 Raw data for MT degradation using bacteria strain 3/500 at an initial MT concentration of 500.0 mg/l

Time	Degrade						Control	
hr	Area		Conc		Conc*	SD	Area	Conc
0.0	3169.5	3167.9	506.310	506.054	***506.182***	**0.181**	3128.3	***499.728***
6.0	2366.8	2354.7	378.083	376.150	***377.117***	**1.367**	-	-
12.0	1537.8	1529	245.655	244.249	***244.952***	**0.994**	-	-
18.0	790.4	786.7	126.262	125.671	***125.966***	**0.418**	-	-
24.0	480.8	476.2	76.805	76.070	***76.438***	**0.520**	3104.6	***495.942***
30.0	166.2	165.9	26.550	26.502	***26.526***	**0.034**	-	-
42.0	114.2	104.8	18.243	16.741	***17.492***	**1.062**	-	-
48.0	93.7	80.7	14.968	12.891	***13.930***	**1.468**	-	-
60.0	19.7	15.2	3.147	2.428	***2.788***	**0.508**	-	-
68.0	10.7	9.4	1.709	1.502	***1.605***	**0.147**	3113.0	***497.284***

Area in unit Amu*S
Conc. = Concentration (mg/l)
Conc.* = Average concentration (mg/l)

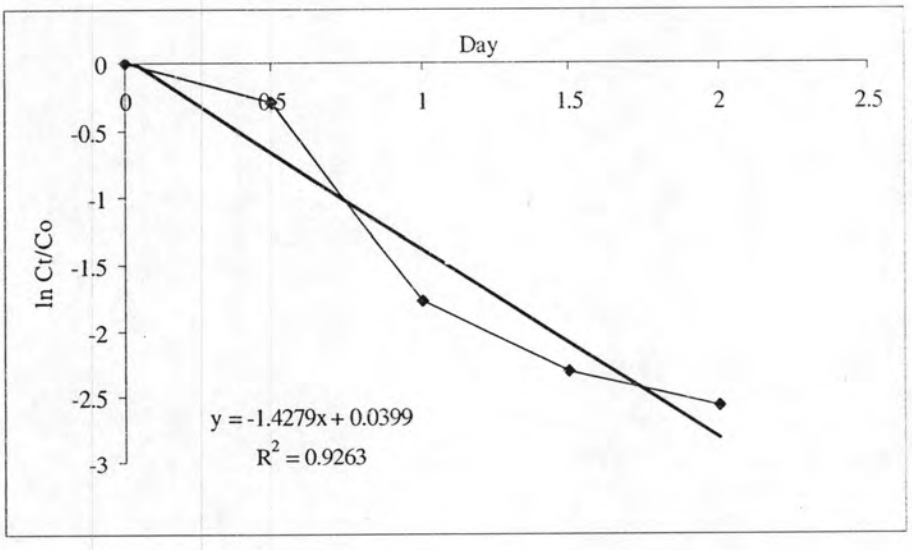
APPENDIX C

Table C-1 Calculation of first order degradation rate constants of MT using aerobic sludge at an initial MT concentration of 0.3 mg/l under aerobic condition

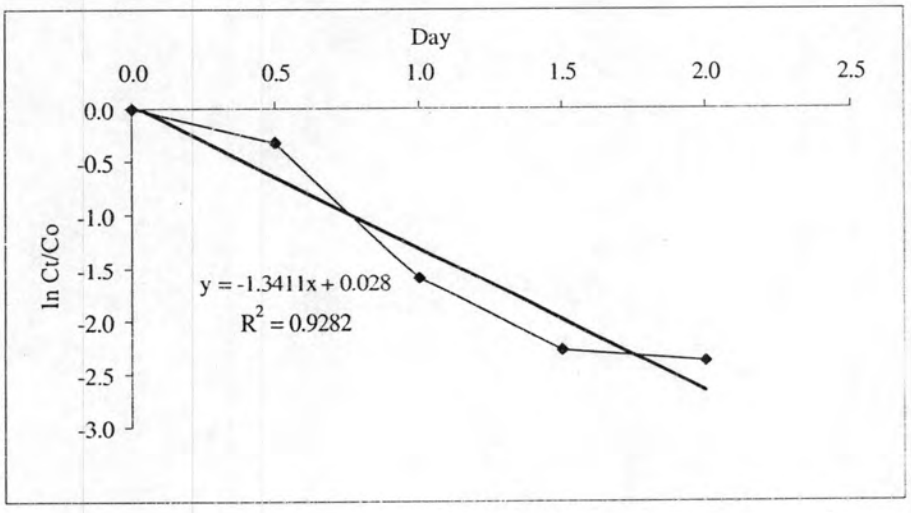
Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	0.34	0.32	0.33	1.00	1.00	1.00	0.00	0.00	0.00
0.5	.0.26	0.24	0.25	0.80	0.73	0.76	-0.23	-0.32	-0.27
1.0	0.07	0.05	0.06	0.20	0.15	0.17	-1.61	-1.93	-1.77
1.5	0.03	0.03	0.03	0.10	0.10	0.10	-2.26	-2.31	-2.29
2.0	0.03	0.02	0.03	0.09	0.07	0.08	-2.38	-2.73	-2.56

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c) .

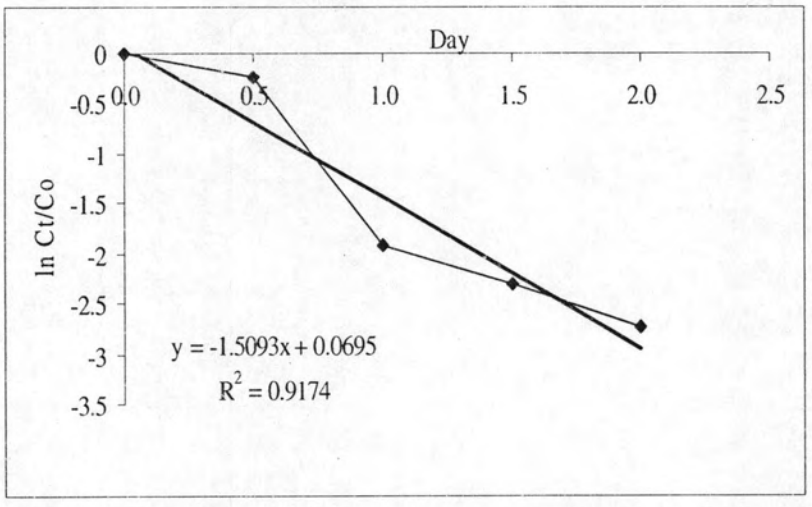


Figure C-1 Calculation of first order degradation rate constants of MT using aerobic sludge at an initial MT concentration of 0.3 mg/l under aerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-2 First order rate constants and standard deviation

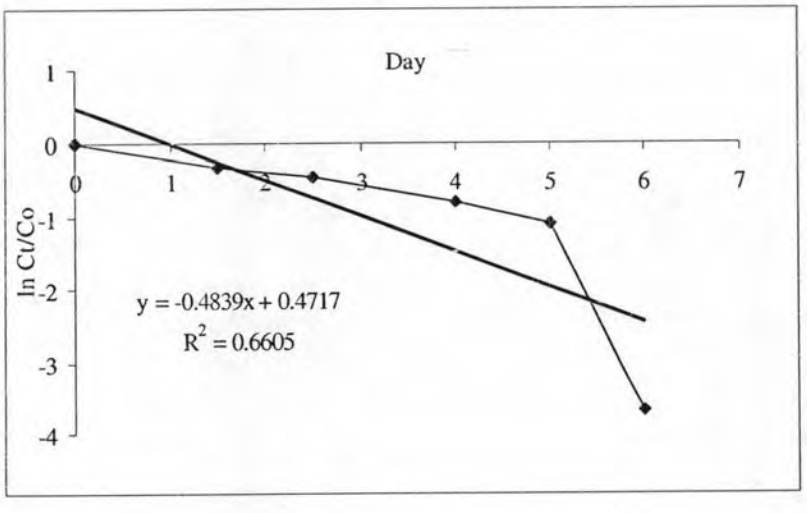
K1	R1	K2	R2	K*	R*	SD
1.34	0.93	1.51	0.92	1.43	0.93	0.12

Table C-3 Calculation of first order degradation rate constant of MT using aerobic sludge at an initial MT concentration of 1.0 mg/l under aerobic condition

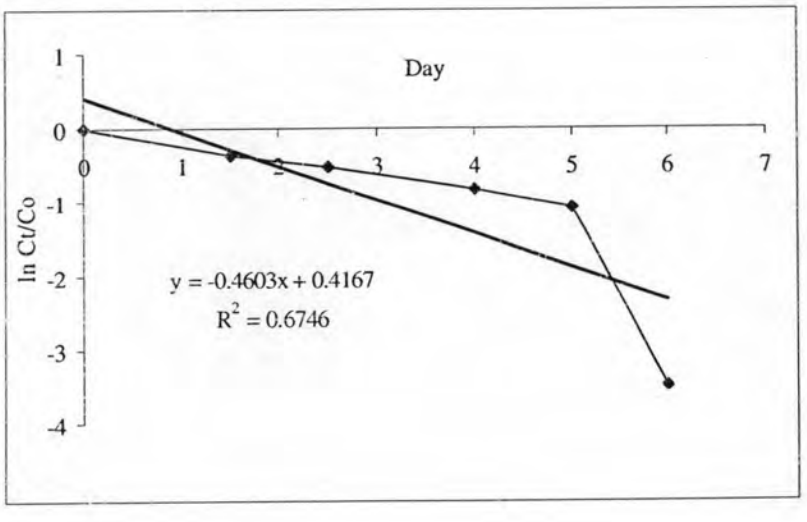
Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	1.36	1.24	1.30	1.00	1.00	1.00	0.00	0.00	0.00
1.5	.0.96	0.92	0.94	0.75	0.70	0.73	-0.29	-0.35	-0.32
2.5	0.83	0.80	0.81	0.65	0.61	0.63	-0.44	-0.50	-0.47
4.0	0.60	0.57	0.59	0.49	0.42	0.45	-0.72	-0.87	-0.80
5.0	0.46	0.41	0.44	0.37	0.30	0.34	-0.98	-1.20	-1.09
6.0	0.04	0.02	0.03	0.03	0.02	0.03	-3.41	-4.03	-3.69
8.0	0.02	0.02	0.02	0.02	0.02	0.02	-3.74	-4.11	-3.92
10.0	0.01	0.01	0.01	0.01	0.01	0.01	-4.55	-4.51	-4.53

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

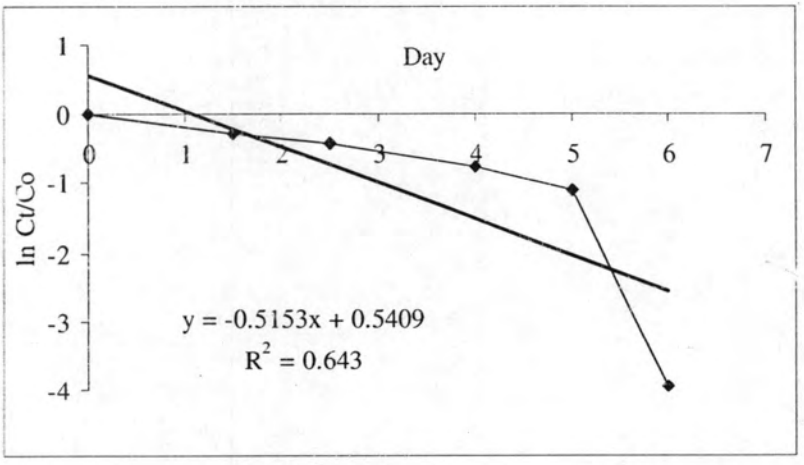


Figure C-2 Calculation of first order degradation rate constant of MT using aerobic sludge at an initial MT concentration of 1.0 mg/l under aerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-4 First order degradation rate constants and standard deviation

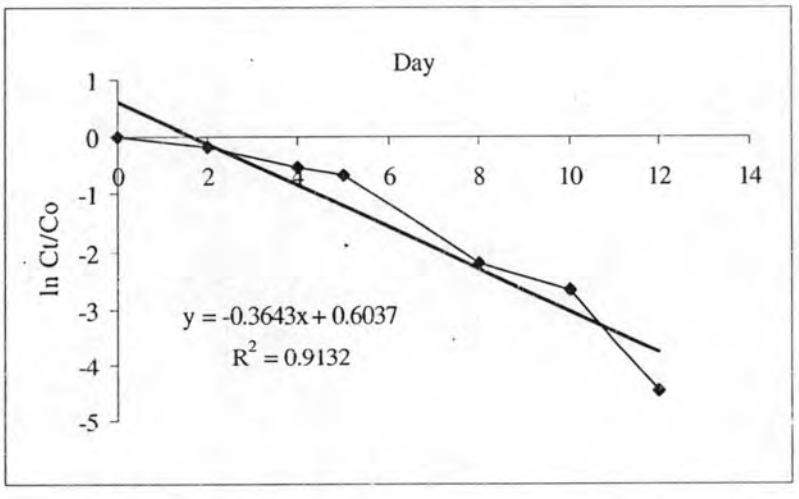
K1	R1	K2	R2	K*	R*	SD
0.46	0.68	0.52	0.64	0.48	0.66	0.04

Table C-5 Calculation of first order degradation rate constant of MT using aerobic sludge at an initial MT concentration of 5.0 mg/l under aerobic condition

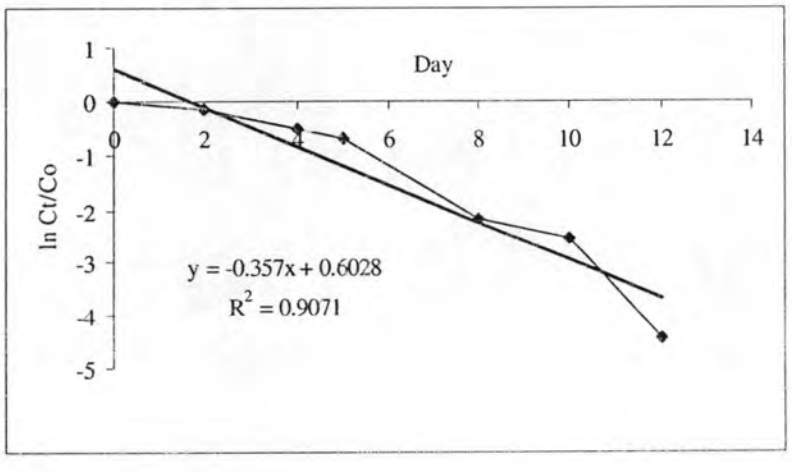
Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	5.19	5.14	5.16	1.00	1.00	1.00	0.00	0.00	0.00
2.0	4.49	4.33	4.41	0.87	0.84	0.85	-0.15	-0.17	-0.16
4.0	3.17	2.87	3.02	0.61	0.56	0.58	-0.49	-0.58	-0.54
5.0	2.69	2.57	2.63	0.52	0.50	0.51	-0.66	-0.70	-0.68
8.0	0.60	0.57	0.58	0.12	0.11	0.11	-2.15	-2.21	-2.18
10.0	0.40	0.31	0.36	0.08	0.06	0.07	-2.56	-2.81	-2.68
12.0	0.06	0.05	0.06	0.01	0.01	0.01	-4.42	-4.56	-4.49
14.0	0.05	0.04	0.04	0.01	0.01	0.01	-4.72	-4.90	-4.81
18.0	0.06	0.03	0.04	0.01	0.01	0.01	-4.51	-5.30	-4.91

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

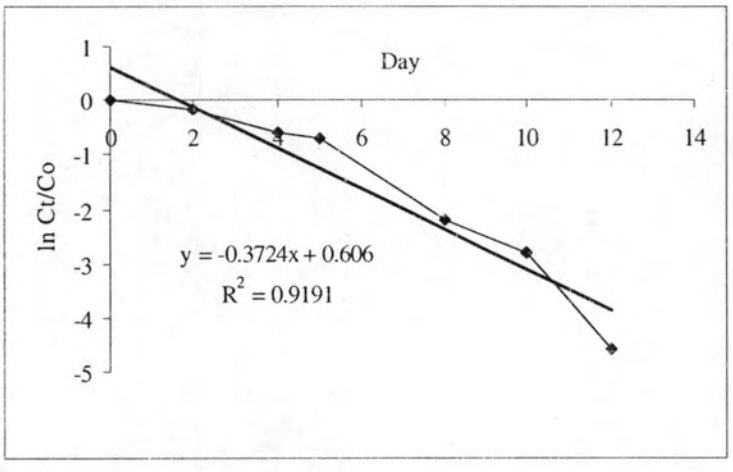


Figure C-3 Calculation of first order degradation rate constant of MT using aerobic sludge at an initial MT concentration of 5.0 mg/l under aerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-6 First order degradation rate constants and standard deviation

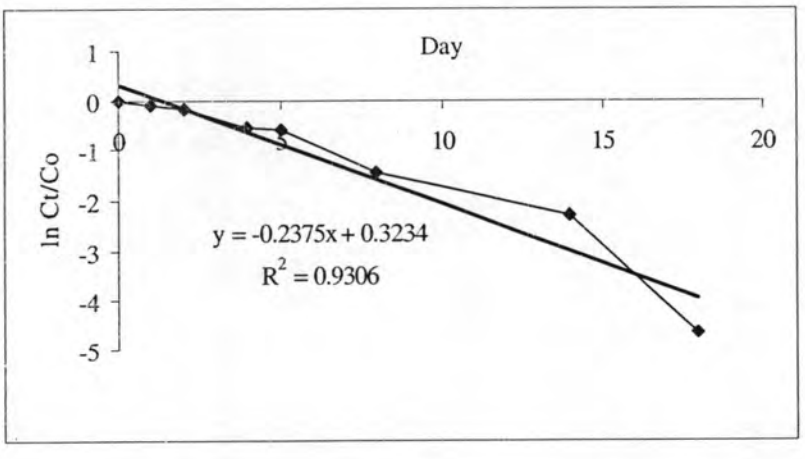
K1	R1	K2	R2	K*	R*	SD
0.36	0.91	0.37	0.92	0.37	0.91	0.01

Table C-7 Calculation of first order degradation rate constant of MT using aerobic sludge at an initial MT concentration of 7.0 mg/l under aerobic condition

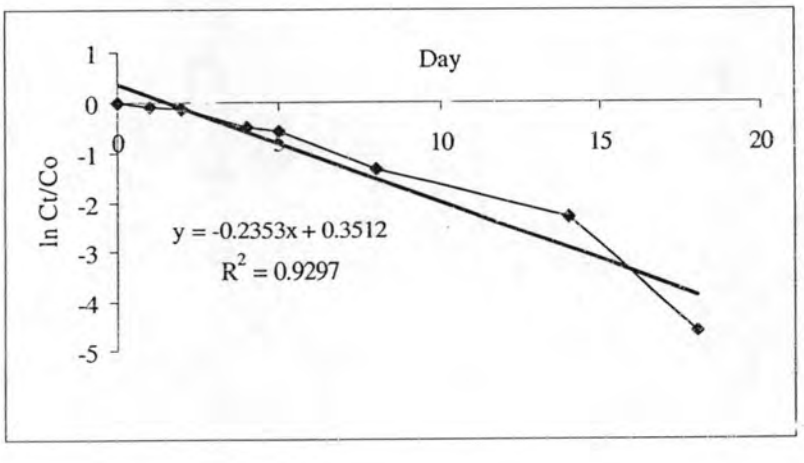
Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	7.03	7.03	7.03	1.00	1.00	1.00	0.00	0.00	0.00
1.0	6.42	6.30	6.36	0.91	0.90	0.91	-0.09	-0.11	-0.10
2.0	6.35	5.59	5.97	0.90	0.80	0.85	-0.10	-0.23	-0.17
4.0	4.28	3.93	4.10	0.61	0.56	0.58	-0.50	-0.58	-0.54
5.0	3.97	3.81	3.89	0.57	0.54	0.55	-0.57	-0.61	-0.59
8.0	1.91	1.49	1.70	0.27	0.21	0.24	-1.30	-1.55	-1.43
14.0	0.72	0.69	0.71	0.10	0.10	0.10	-2.28	-2.32	-2.30
18.0	0.07	0.06	0.07	0.01	0.01	0.01	-4.59	-4.72	-4.65
20.0	0.04	0.03	0.03	0.01	0.01	0.01	-5.23	-5.60	-5.41

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

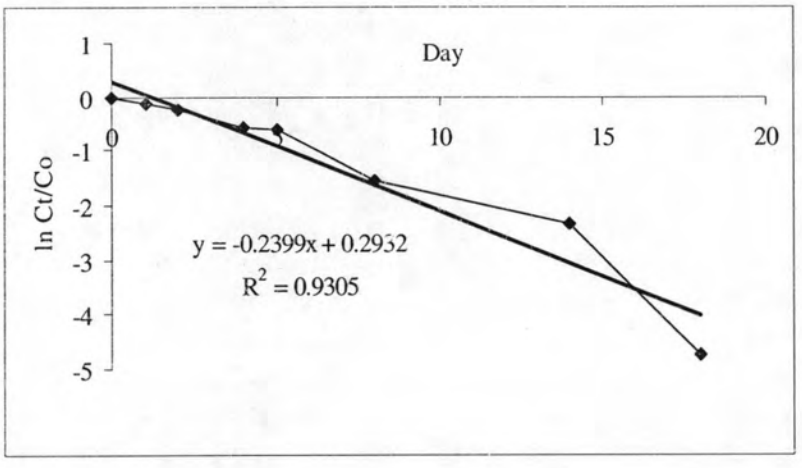


Figure C-4 Calculation of first order degradation rate constant of MT using aerobic sludge at an initial MT concentration of 7.0 mg/l under aerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-8 First order degradation rate constants and standard deviation

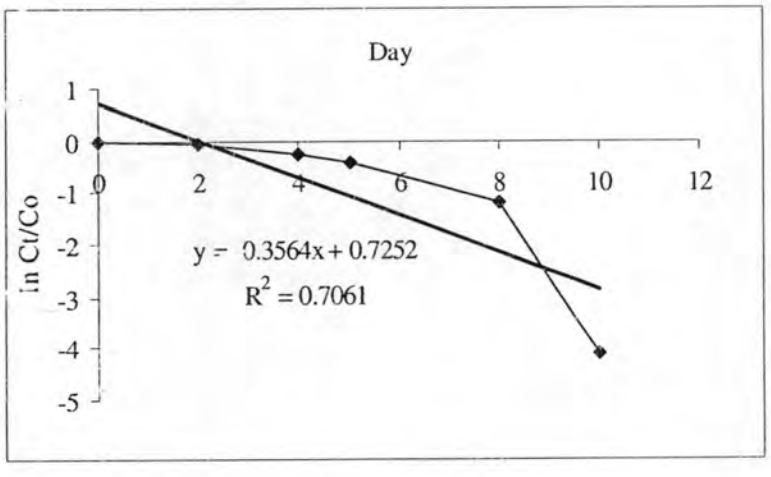
K1	R1	K2	R2	K*	R*	SD
0.24	0.93	0.24	0.93	0.24	0.93	0.01

Table C-9 Calculation of first order degradation rate constant of MT using aerobic sludge at an initial MT concentration of 10.0 mg/l under aerobic condition

Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	10.23	10.03	10.13	1.00	1.00	1.00	0.00	0.00	0.00
2.0	9.55	9.41	9.48	0.94	0.93	0.94	-0.06	-0.07	-0.07
4.0	8.17	7.60	7.88	0.80	0.76	0.78	-0.23	-0.28	-0.25
5.0	7.00	6.59	6.79	0.68	0.66	0.67	-0.38	-0.42	-0.40
8.0	3.34	2.93	3.13	0.33	0.29	0.31	-1.11	-1.24	-1.18
10.0	0.79	0.04	0.41	0.08	0.00	0.04	-2.55	-5.63	-4.09
14.0	0.25	0.03	0.14	0.03	0.00	0.01	-3.69	-5.77	-4.73
16.0	0.23	0.22	0.23	0.02	0.02	0.02	-3.78	-3.83	-3.80
18.0	0.26	0.18	0.22	0.03	0.02	0.02	-3.68	-4.06	-3.87
20.0	0.11	0.03	0.07	0.01	0.00	0.01	-4.57	-6.01	-5.05

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



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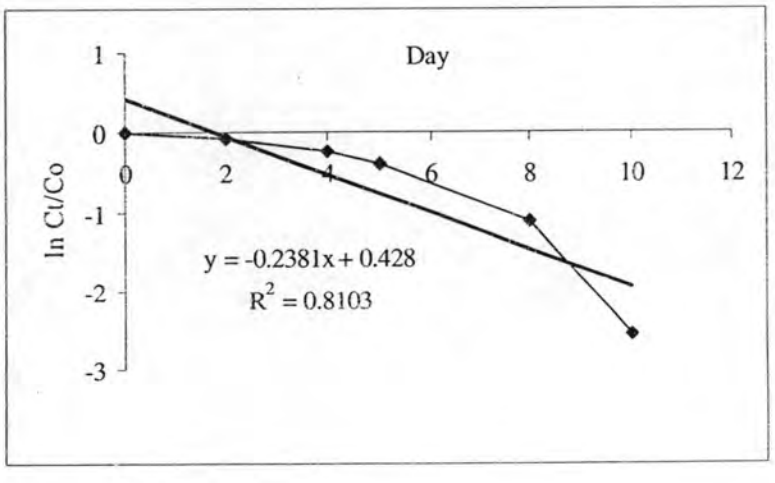

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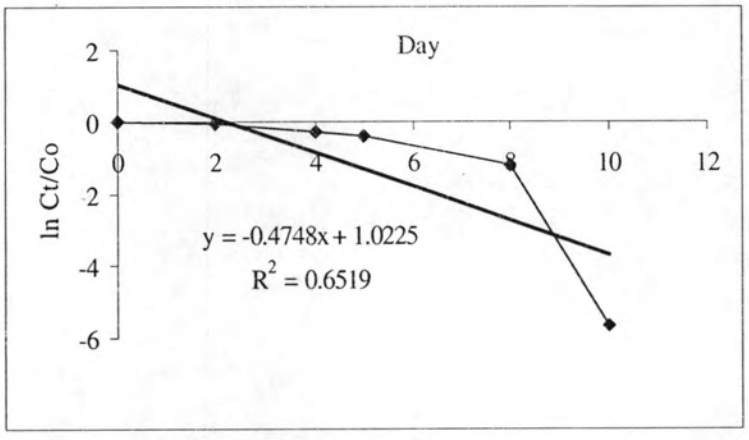


Figure C-5 Calculation of first order degradation rate constant of MT using aerobic sludge at an initial MT concentration of 10.0 mg/l under aerobic condition (a for ln Ct/Co*, b for ln Ct_1/ $Co_1$and c for ln Ct_2/Co_2)

Table C-10 First order degradation rate constants and standard deviation

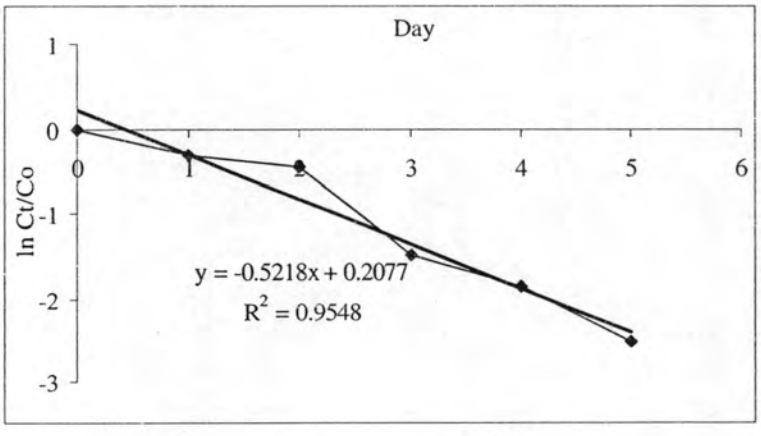
K1	R1	K2	R2	K*	R*	SD
0.24	0.81	0.48	0.65	0.36	0.71	0.17

Table C-11 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 0.3 mg/l under aerobic condition

Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	0.34	0.34	0.34	1.00	0.99	1.00	0.00	0.00	0.00
1.0	.0.26	0.21	0.23	0.74	0.60	0.67	-0.30	-0.30	-0.30
2.0	0.25	0.19	0.22	0.74	0.56	0.65	-0.30	-0.58	-0.44
3.0	0.09	0.07	0.08	0.25	0.21	0.23	-1.38	-1.56	-1.47
4.0	0.06	0.05	0.05	0.17	0.14	0.16	-1.77	-1.94	-1.86
5.0	0.03	0.03	0.03	0.09	0.08	0.08	-2.44	-2.59	-2.51

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



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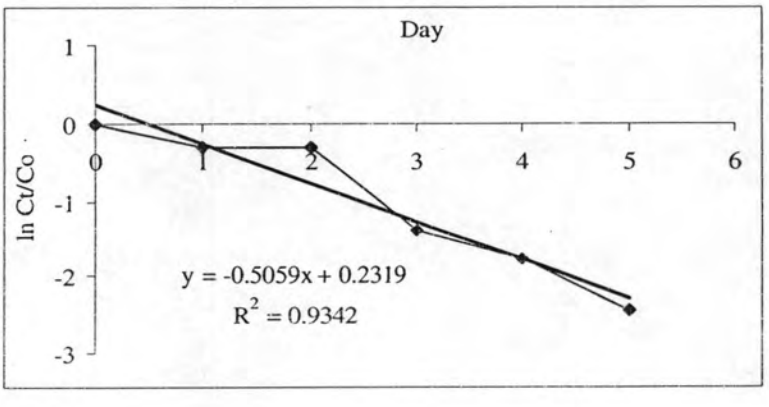

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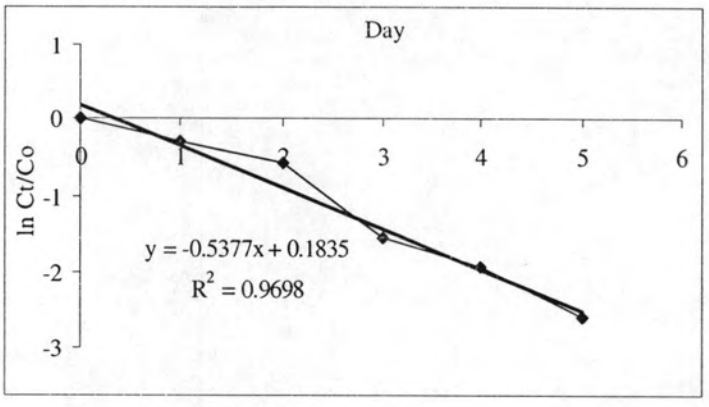


Figure C- 6 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 0.3 mg/l under aerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-12 First order degradation rate constants and standard deviation

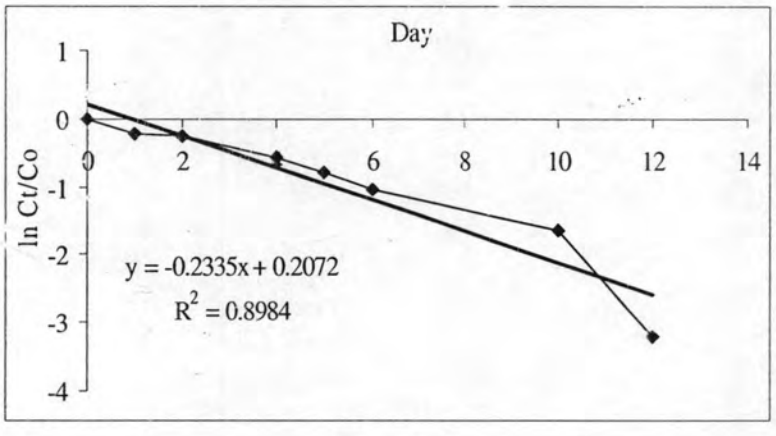
K1	R1	K2	R2	K*	R*	SD
0.51	0.93	0.54	0.97	0.52	0.96	0.02

Table C-13 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 1.0 mg/l under aerobic condition

Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	1.27	1.13	1.20	1.06	0.94	1.00	0.00	0.00	0.00
1.0	1.04	0.89	0.97	0.87	0.74	0.80	-0.14	-0.30	-0.22
2.0	0.97	0.91	0.94	0.81	0.76	0.78	-0.21	-0.28	-0.25
4.0	0.71	0.66	0.69	0.59	0.55	0.57	-0.52	-0.60	-0.56
5.0	0.56	0.53	0.55	0.47	0.44	0.46	-0.76	-0.81	-0.79
6.0	0.39	0.47	0.43	0.32	0.39	0.36	-1.13	-0.93	-1.03
10.0	0.38	0.15	0.26	0.32	0.12	0.22	-1.15	-2.12	-1.63
12.0	0.06	0.04	0.05	0.05	0.03	0.04	-3.01	-3.40	-3.20
16.0	0.04	0.01	0.03	0.04	0.01	0.02	-3.33	-4.54	-3.94

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



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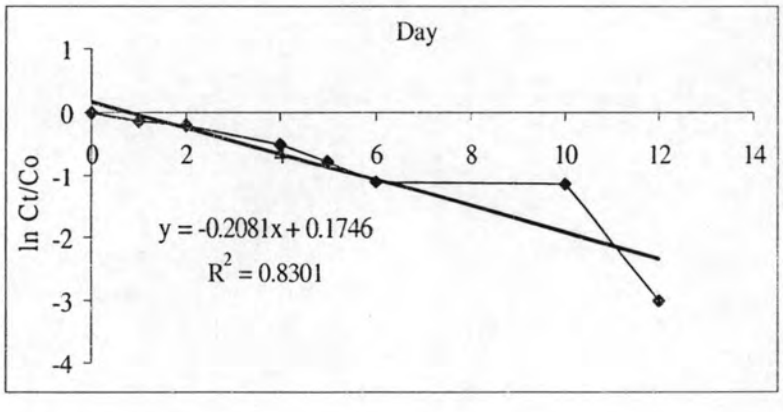

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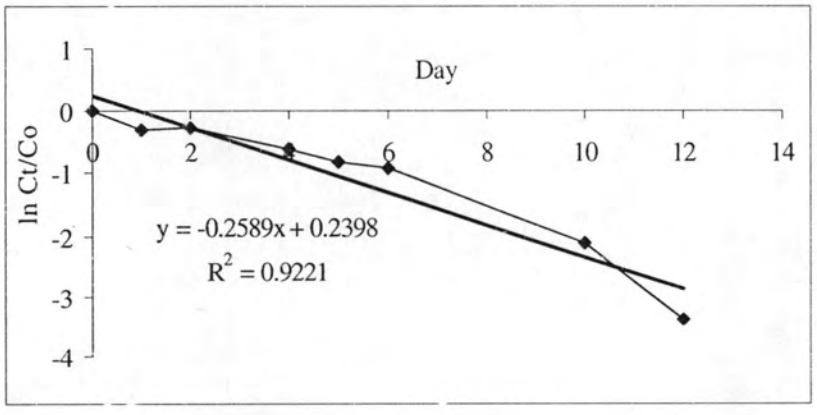


Figure C-7 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 1.0 mg/l under aerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-14 First order degradation rate constants and standard deviation

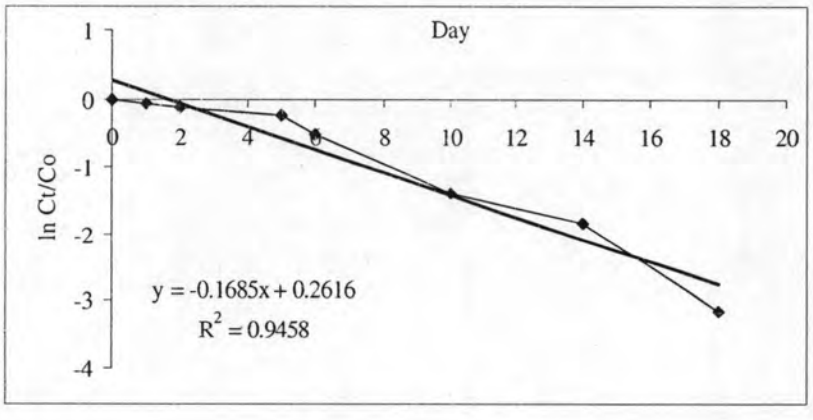
K1	R1	K2	R2	K*	R*	SD
0.21	0.83	0.26	0.92	0.23	0.90	0.04

Table C-15 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 5.0 mg/l under aerobic condition

Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	5.18	5.18	5.18	1.00	1.00	1.00	0.00	0.00	0.00
1.0	4.80	4.79	4.79	0.93	0.92	0.93	-0.08	-0.08	-0.08
2.0	4.56	4.51	4.54	0.88	0.87	0.88	-0.13	-0.14	-0.13
5.0	4.09	4.07	4.08	0.79	0.79	0.79	-0.24	-0.24	-0.24
6.0	3.28	2.88	3.08	0.63	0.56	0.59	-0.46	-0.59	-0.52
10.0	1.33	1.28	1.31	0.26	0.25	0.25	-1.36	-1.40	-1.38
14.0	1.15	0.58	0.87	0.22	0.11	0.17	-1.50	-2.18	-1.84
18.0	0.27	0.19	0.23	0.05	0.04	0.04	-2.97	-3.33	-3.15
20.0	0.10	0.07	0.08	0.02	0.01	0.02	-4.00	-4.29	-4.14
23.0	0.06	0.03	0.04	0.01	0.01	0.01	-4.55	-5.09	-4.82

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



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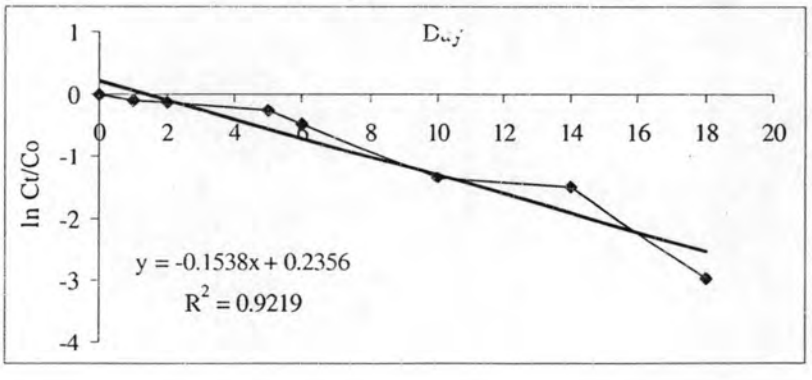

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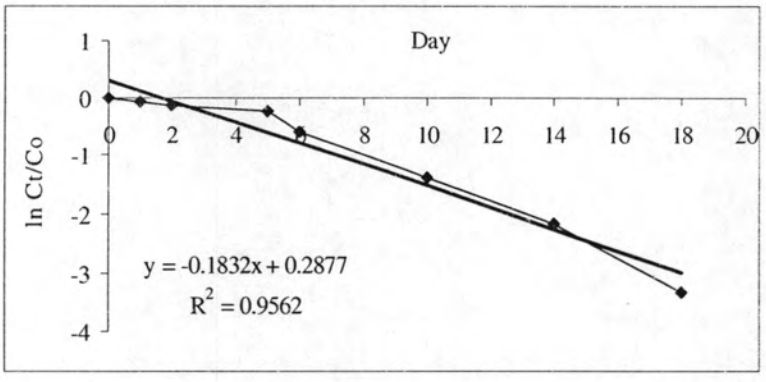


Figure C-8 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 5.0 mg/l under aerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-16 First order degradation rate constants and standard deviation

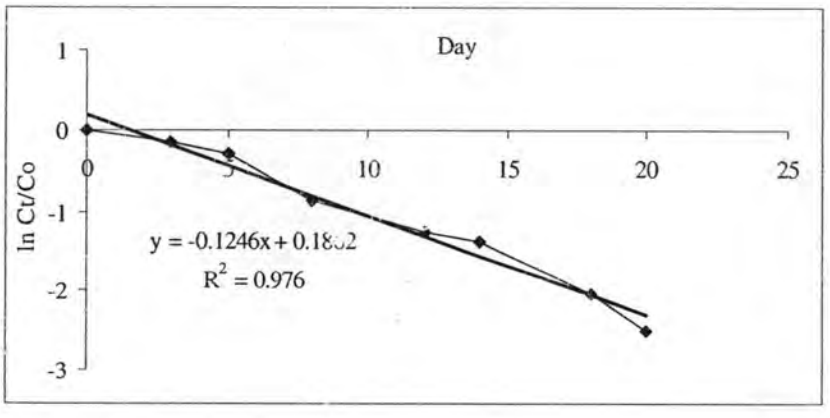
K_1	R_1	K_2	R_2	K*	R*	SD
0.15	0.92	0.18	0.96	0.17	0.95	0.02

Table C-17 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 7.0 mg/l under aerobic condition

Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	7.44	7.05	7.24	1.03	0.98	1.00	0.00	0.00	0.00
3.0	6.36	6.11	6.24	0.88	0.85	0.86	-0.13	-0.17	-0.15
5.0	5.47	5.21	5.34	0.76	0.72	0.74	-0.28	-0.33	-0.30
8.0	3.65	2.54	3.09	0.51	0.35	0 43	-0.68	-1.05	-0.86
12.0	2.20	1.91	2.05	0.30	0.26	0.28	-1.19	-1.33	-1.26
14.0	2.59	1.32	1.95	0.36	0.18	0.27	-1.02	-1.70	-1.36
18.0	0.96	0.91	0.93	0.13	0.13	0.13	-2.02	-2.07	-2.04
20.0	0.65	0.53	0.59	0.09	0.07	0.08	-2.40	-2.61	-2.51
23.0	0.08	0.08	0.08	0.01	0.01	0.01	-4.53	-4.57	-4.55
26.0	0.06	0.03	0.05	0.01	0.00	0.01	-4.73	-5.48	-5.11

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



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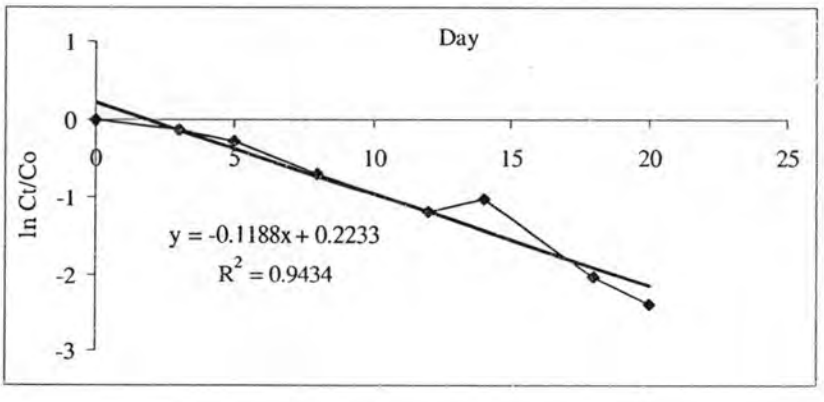

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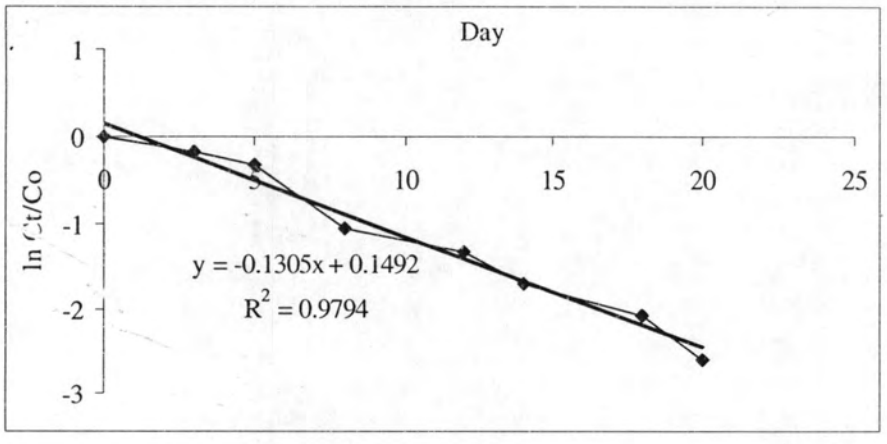


Figure C-9 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 7.0 mg/l under aerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-18 First order degradation rate constants and standard deviation

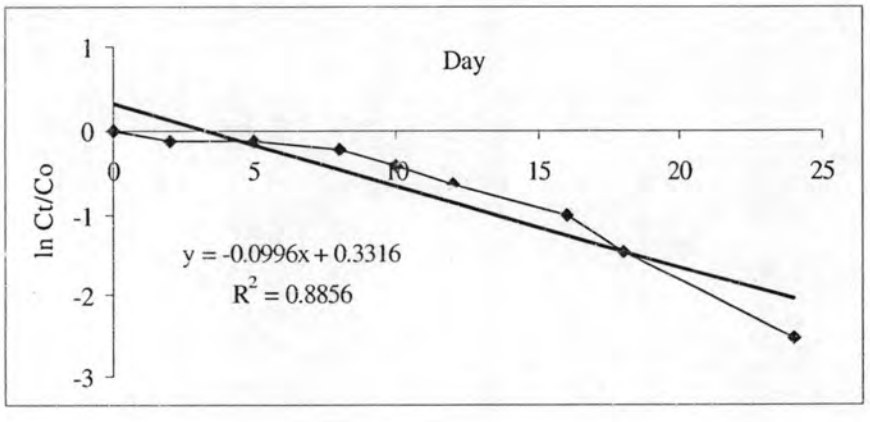
K_1	R_1	K_2	R_2	K*	R*	SD
0.12	0.93	0.13	0.98	0.13	0.98	0.01

Table C-19 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 10.0 mg/l under aerobic condition

Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	9.99	9.95	9.97	1.00	1.00	1.00	0.00	0.00	0.00
2.0	8.99	8.94	8.96	0.90	0.90	0.90	-0.10	-0.11	-0.11
5.0	8.50	9.29	8.89	0.85	0.93	0.89	-0.16	-0.07	-0.12
8.0	7.98	7.94	7.96	0.80	0.80	0.80	-0.22	-0.23	-0.23
10.0	7.36	5.90	6.63	0.74	0.59	0.67	-0.30	-0.53	-0.41
12.0	5.80	4.88	5.34	0.58	0.49	0.54	-0.54	-0.71	-0.63
16.0	3.71	3.62	3.67	0.37	0.36	0.37	-0.99	-1.01	-1.00
18.0	2.45	2.15	2.30	0.25	0.22	0.23	-1.41	-1.54	-1.47
24.0	0.89	0.72	0.81	0.09	0.07	0.08	-2.42	-2.62	-2.52
28.0	0.54	0.50	0.52	0.05	0.05	0.05	-2.92	-2.99	-2.96
32.0	0.06	0.05	0.06	0.01	0.01	0.01	-5.07	-5.22	-5.15

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



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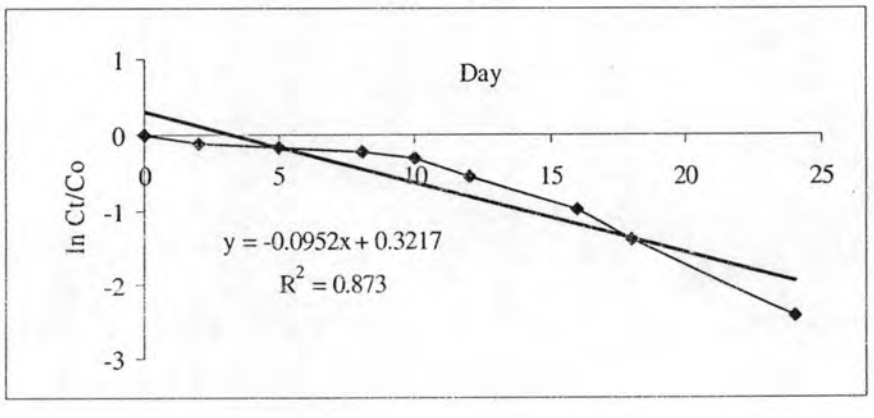

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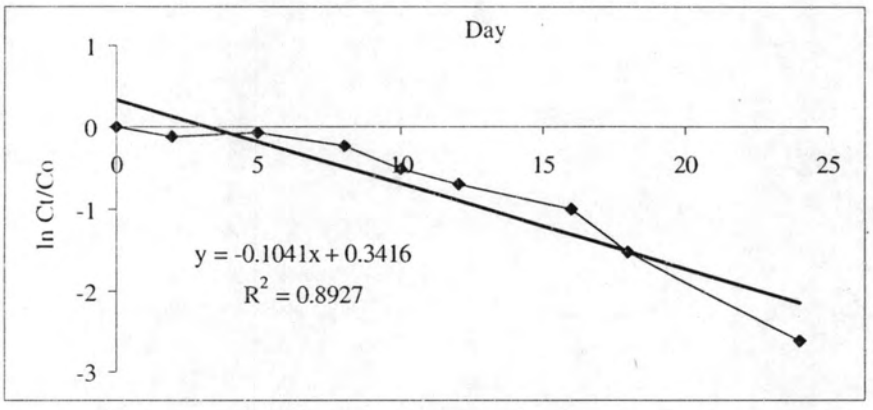


Figure C-10 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 10.0 mg/l under aerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-20 First order degradation rate constants and standard deviation

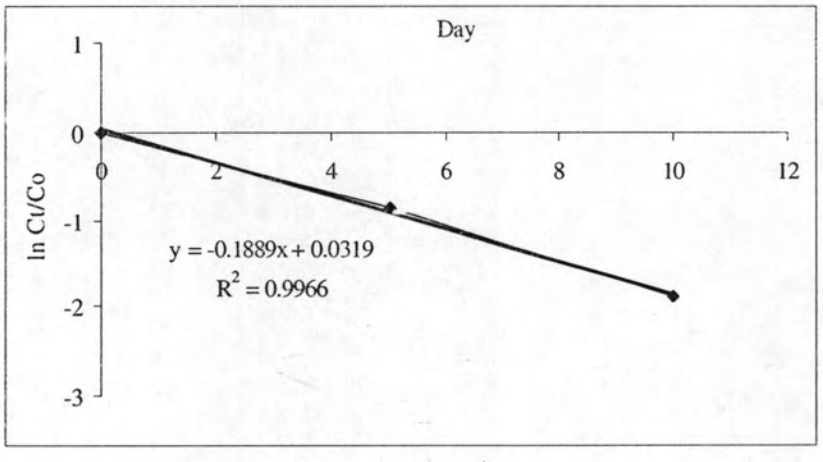
K1	R1	K2	R2	K*	R*	SD
0.10	0.87	0.10	0.89	0.10	0.89	0.01

Table C-21 Calculation of first order degradation rate constant of MT using anaerobic sludge at an initial MT concentration of 0.1 mg/l under anaerobic condition

Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	0.10	0.10	0.10	1.00	1.00	1.00	0.00	0.00	0.00
5.0	0.04	0.04	0.04	0.43	0.43	0.43	-0.85	-0.85	-0.85
10.0	0.02	0.01	0.02	0.15	0.15	0.15	-1.87	-1.90	-1.89

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



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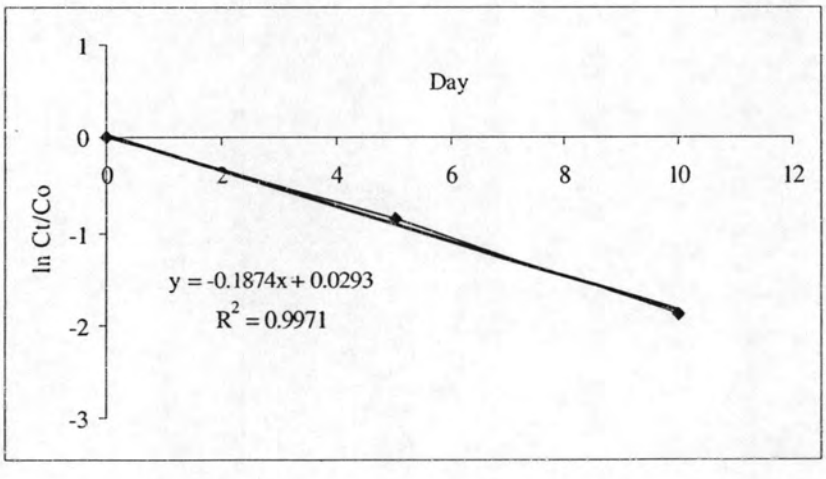

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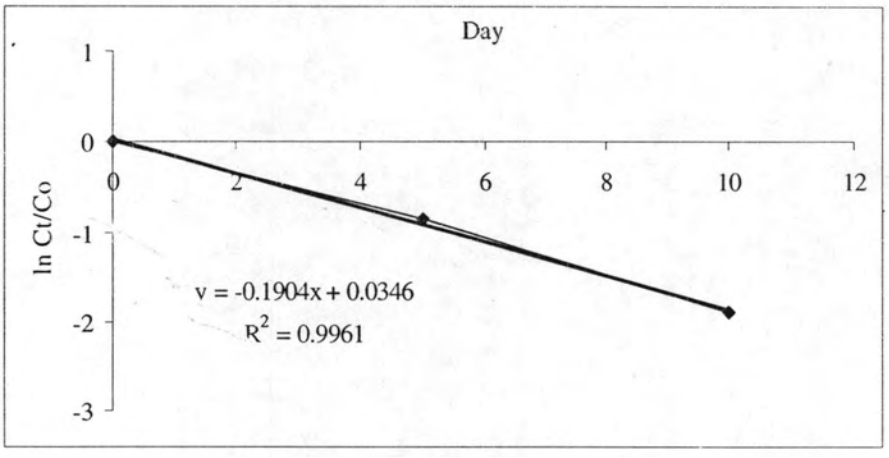


Figure C-11 Calculation of first order degradation rate constant of MT using anaerobic sludge at an initial MT concentration of 0.1 mg/l under anaerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-22 First order degradation rate constants and standard deviation

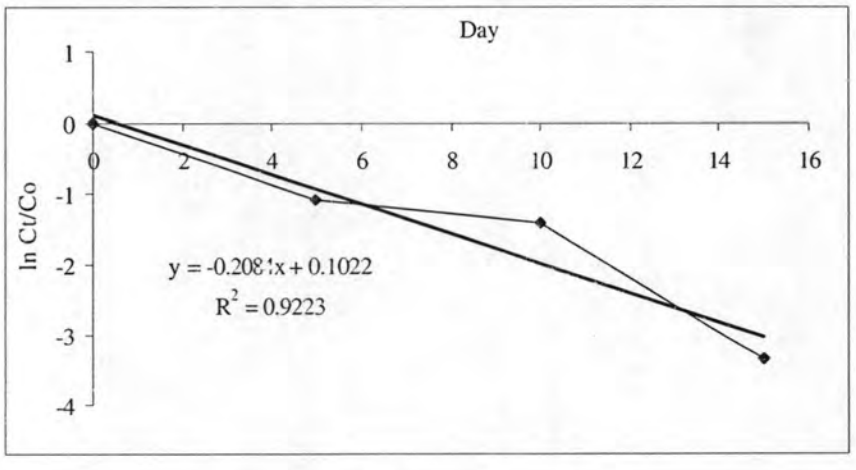
K1	R1	K2	R2	K*	R*	SD
0.19	1.00	0.19	1.00	0.19	1.00	0.01

Table C-23 Calculation of first order degradation rate constant of MT using anaerobic sludge at an initial MT concentration of 1.0 mg/l under anaerobic condition

Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	1.08	0.95	1.01	1.06	0.94	1.00	0.00	0.00	0.00
5.0	0.38	0.32	0.35	0.38	0.31	0.35	-0.97	-1.17	-1.07
10.0	0.28	0.21	0.25	0.28	0.21	0.25	-1.27	-1.56	-1.42
15.0	0.04	0.04	0.04	0.04	0.03	0.04	-3.34	-3.37	-3.36
20.0	0.03	0.03	0.03	0.03	0.03	0.03	-3.57	-3.60	-3.58
25.0	0.03	0.03	0.03	0.03	0.03	0.03	-3.44	-3.69	-3.57
30.0	0.03	0.02	0.02	0.03	0.02	0.02	-3.67	-3.86	-3.77
35.0	0.02	0.02	0.02	0.02	0.02	0.02	-3.83	-3.93	-3.88

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



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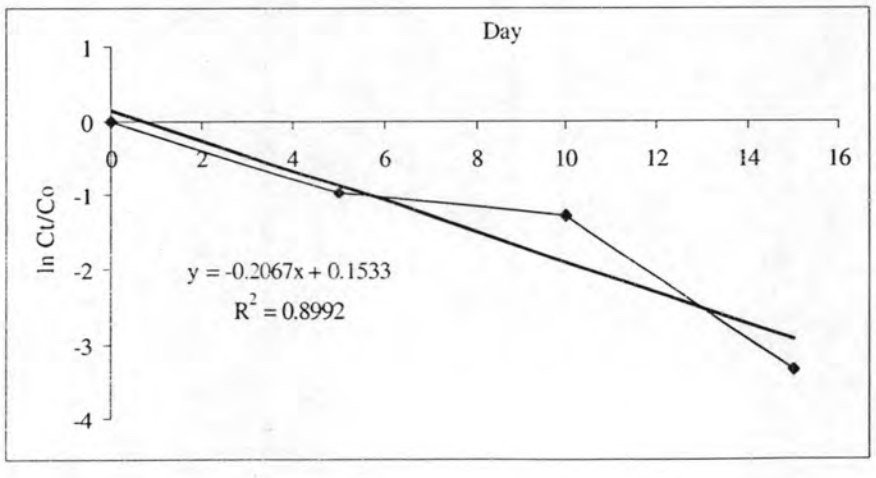

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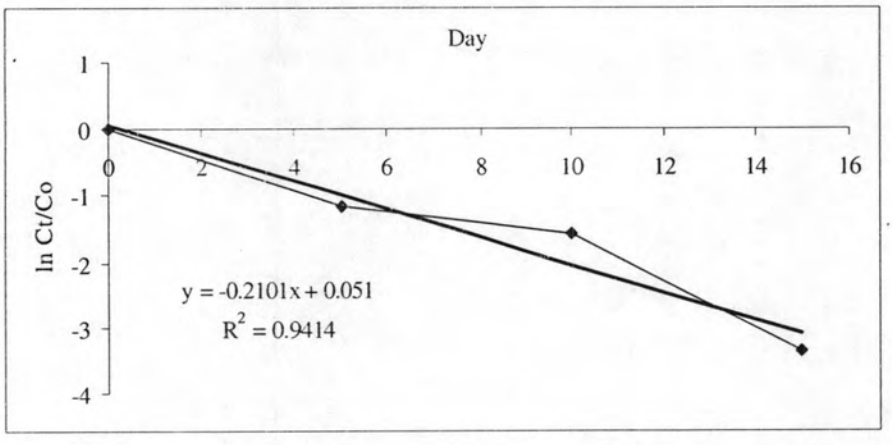


Figure C-12 Calculation of first order degradation rate constant of MT using anaerobic sludge at an initial MT concentration of 1.0 mg/l under anaerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-24 First order degradation rate constants and standard deviation

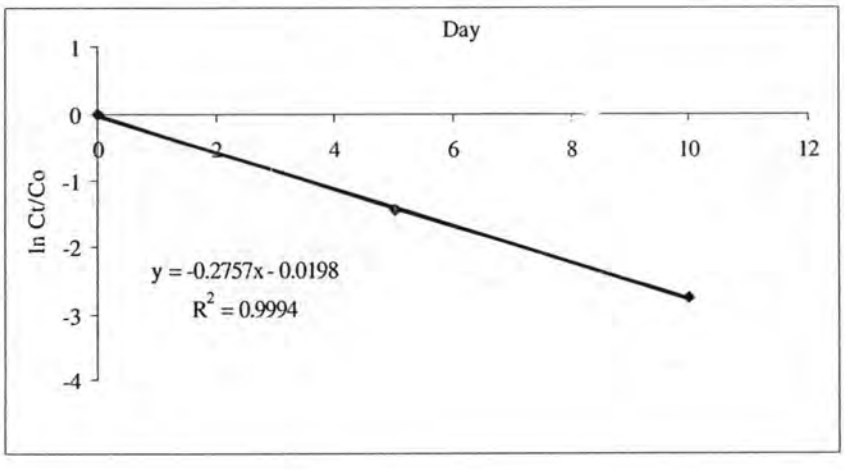
K1	R1	K2	R2	K*	R*	SD
0.21	0.90	0.21	0.94	0.21	0.92	0.01

Table C-25 Calculation of first order degradation rate constant of MT using anaerobic sludge at an initial MT concentration of 3.0 mg/l under anaerobic condition

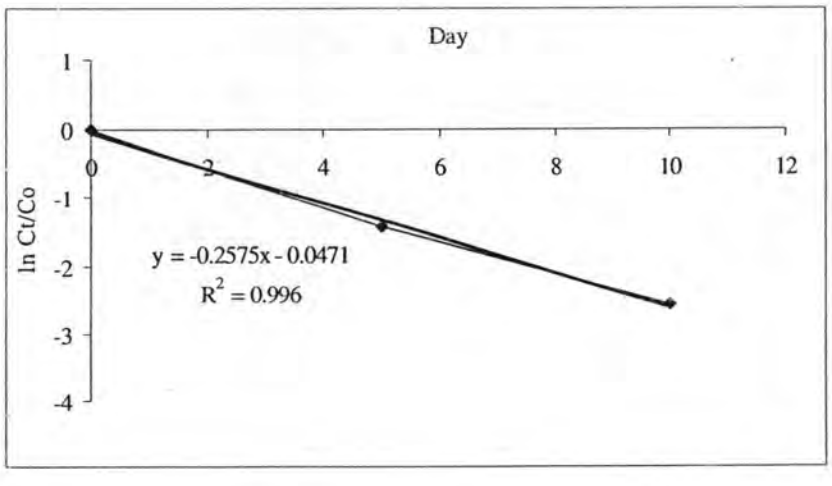
Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	3.12	3.07	3.09	1.01	0.99	1.00	0.00	0.00	0.00
5.0	0.74	0.73	0.73	0.24	0.24	0.24	-1.43	-1.45	-1.44
10.0	0.24	0.16	0.20	0.08	0.05	0.07	-2.58	-2.94	-2.76
15.0	0.03	0.03	0.03	0.01	0.01	0.01	-4.65	-4.74	-4.69
20.0	0.03	0.02	0.03	0.01	0.01	0.01	-4.58	-4.87	-4.73
25.0	0.02	0.02	0.02	0.01	0.01	0.01	-4.86	-4.91	-4.89
30.0	0.02	0.02	0.02	0.01	0.01	0.01	-4.97	-5.02	-4.99
35.0	2.59	2.34	2.46	0.84	0.76	0.80	-0.18	-0.28	-0.23

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

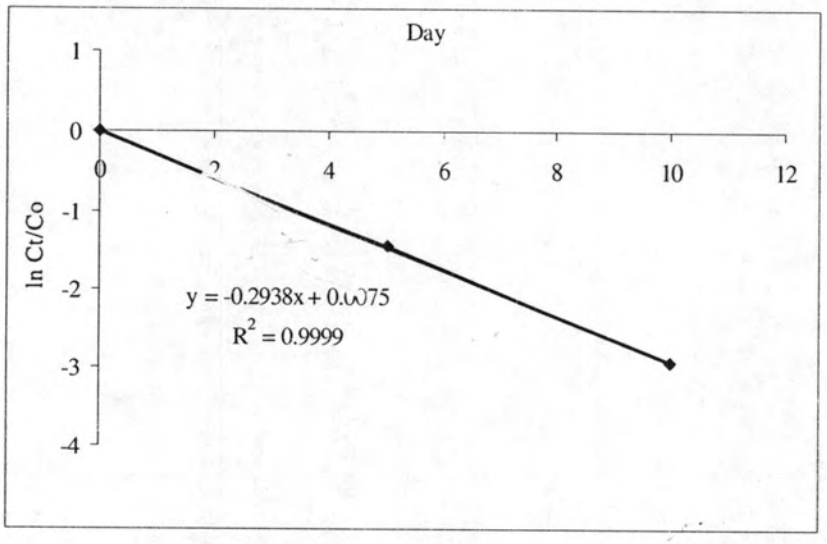


Figure C-13 Calculation of first order degradation rate constant of MT using anaerobic sludge at an initial MT concentration of 3.0 mg/l under anaerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-26 First order degradation rate constants and standard deviation

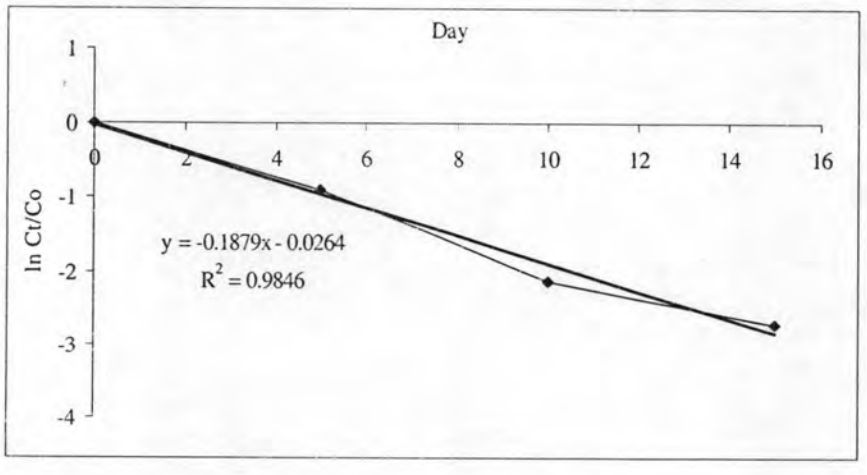
K1	R1	K2	R2	K*	R*	SD
0.26	1.00	0.29	1.00	0.28	1.00	0.03

Table C-27 Calculation of first order degradation rate constant of MT using anaerobic sludge at an initial MT concentration of 5.0 mg/l under anaerobic condition

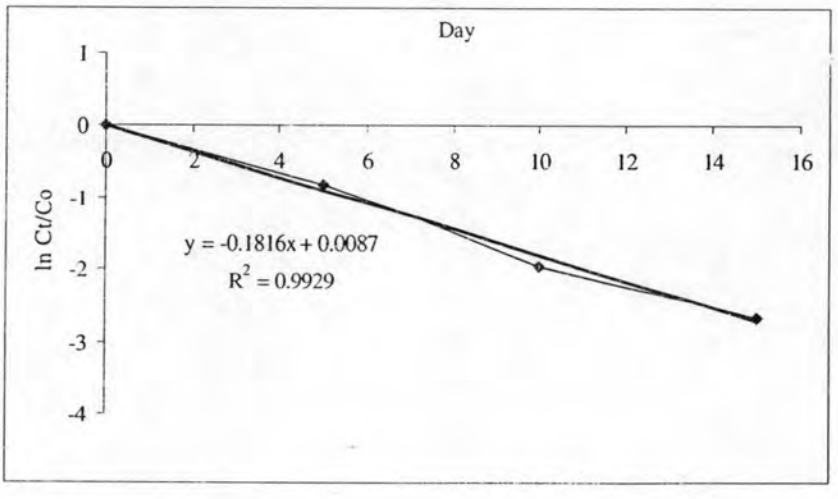
Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	5.15	4.75	4.95	1.04	0.96	1.00	0.00	0.00	0.00
5.0	2.19	1.87	2.03	0.44	0.38	0.41	-0.82	-0.97	-0.90
10.0	0.71	0.49	0.60	0.14	0.10	0.12	-1.94	-2.31	-2.13
15.0	0.35	0.30	0.33	0.07	0.06	0.07	-2.65	-2.79	-2.72
20.0	0.27	0.25	0.26	0.05	0.05	0.05	-2.93	-2.98	-2.95
25.0	0.20	0.17	0.19	0.04	0.04	0.04	-3.21	-3.36	-3.29
30.0	0.15	0.12	0.13	0.03	0.02	0.03	-3.52	-3.71	-3.62
35.0	0.10	0.09	0.10	0.02	0.02	0.02	-3.89	-4.00	-3.94

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

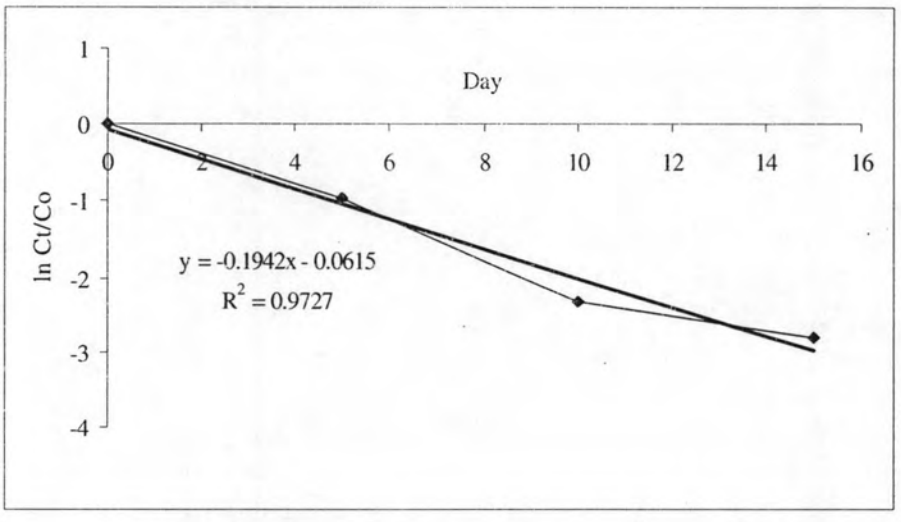


Figure C-14 Calculation of first order degradation rate constant of MT using anaerobic sludge at an initial MT concentration of 5.0 mg/l under anaerobic condition (a for ln Ct/Co*, b for ln Ct_1/ $Co_1$and c for ln Ct_2/Co_2)

Table C-28 First order degradation rate constants and standard deviation

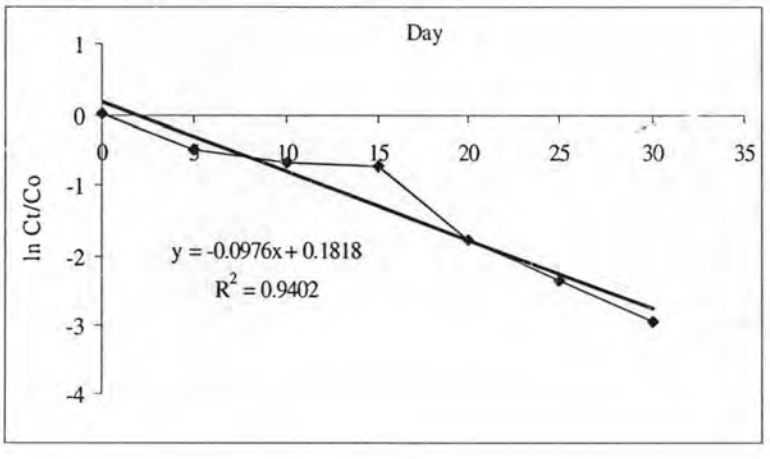
K1	R1	K2	R2	K*	R*	SD
0.18	0.99	0.19	0.97	0.19	0.99	0.01

Table C-29 Calculation of first order degradation rate constant of MT using anaerobic sludge at an initial MT concentration of 10.0 mg/l under anaerobic condition

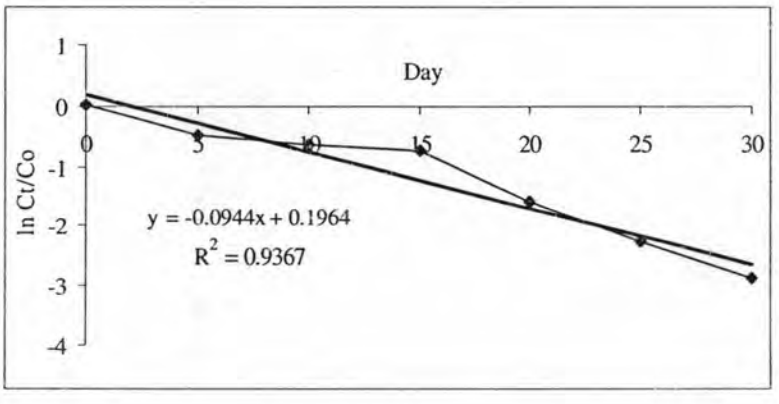
Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_i	ln Ct_2/Co_2	ln Ct/Co*
0.0	10.11	9.89	10.00	1.02	1.00	1.01	0.02	0.00	0.01
5.0	6.09	5.94	6.01	0.62	0.60	0.61	-0.49	-0.51	-0.50
10.0	5.28	4.69	4.99	0.53	0.47	0.50	-0.63	-0.75	-0.69
15.0	4.82	4.65	4.73	0.49	0.47	0.48	-0.72	-0.76	-0.74
20.0	2.04	1.41	1.72	0.21	0.14	0.17	-1.58	-1.95	-1.77
25.0	1.03	0.86	0.94	0.10	0.09	0.10	-2.26	-2.45	-2.36
30.0	0.56	0.49	0.52	0.06	0.05	0.05	-2.88	-3.02	-2.95
35.0	0.23	0.21	0.22	0.02	0.02	0.02	-3.76	-3.84	-3.80

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

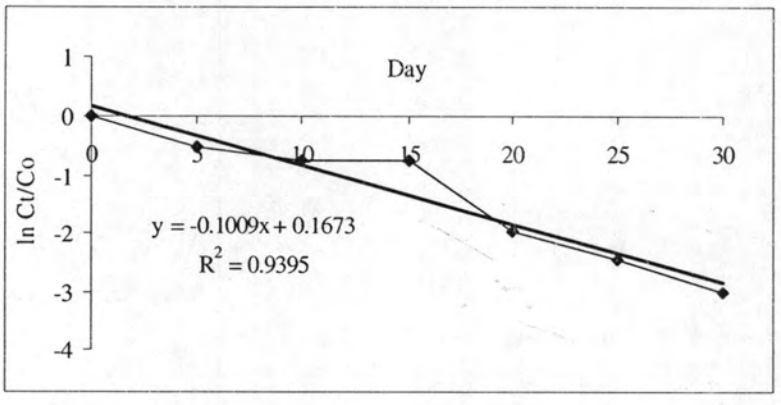


Figure C-15 Calculation of first order degradation rate constant of MT using anaerobic sludge at an initial MT concentration of 10.0 mg/l under anaerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-30 First order degradation rate constants and standard deviation

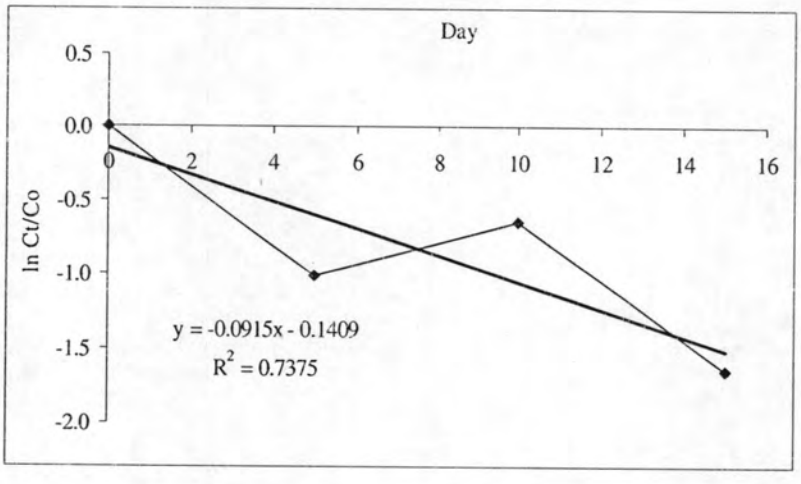
K_1	R_1	K_2	R_2	K*	R*	SD
0.09	0.94	0.10	0.94	0.10	0.94	0.01

Table C-31 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 0.1 mg/l under anaerobic condition

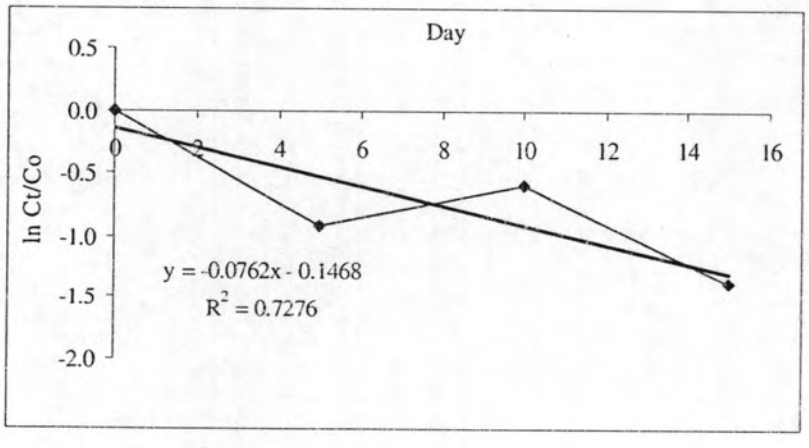
Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	0.10	0.10	0.10	1.00	1.00	1.00	0.00	0.00	0.00
5.0	0.04	0.03	0.04	0.40	0.33	0.37	-0.91	-1.12	-1.01
10.0	0.06	0.05	0.05	0.55	0.49	0.52	-0.59	-0.71	-0.65
15.0	0.03	0.02	0.02	0.25	0.15	0.20	-1.37	-1.92	-1.65

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



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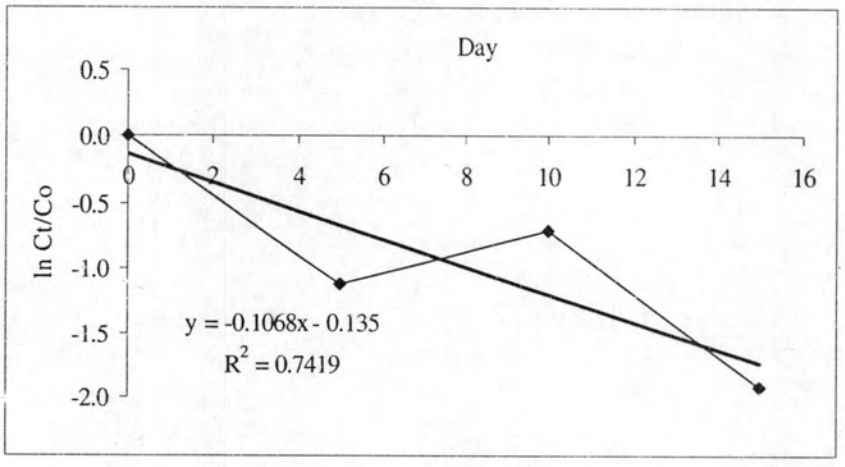


Figure C-16 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 0.1 mg/l under anaerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-32 First order degradation rate constants and standard deviation

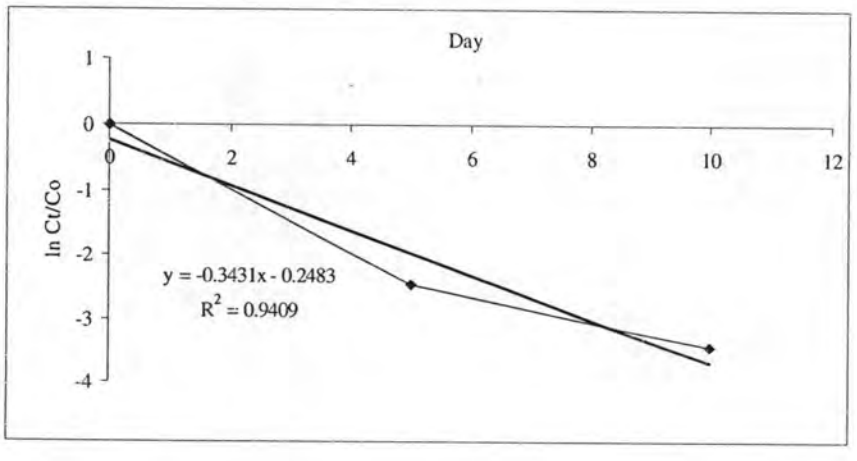
K1	R1	K2	R2	K*	R*	SD
0.08	0.73	0.11	0.74	0.09	0.74	0.02

Table C-33 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 1.0 mg/l under anaerobic condition

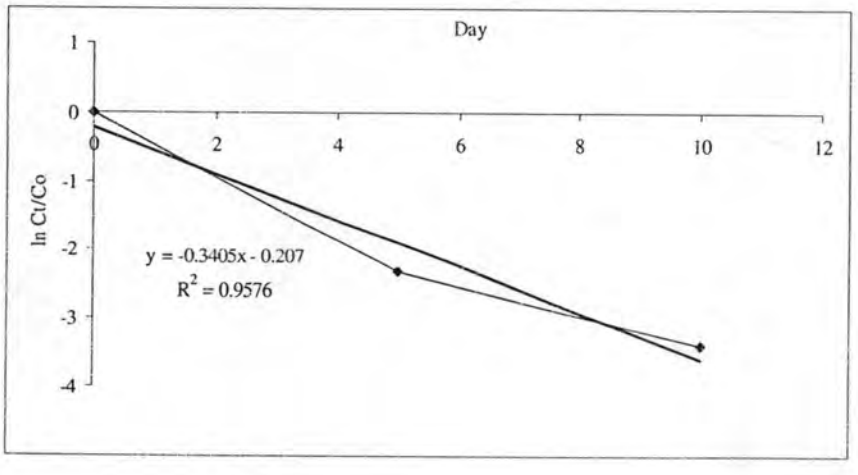
Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	1.11	1.01	1.06	1.05	1.00	0.95	0.00	0.00	0.00
5.0	0.10	0.08	0.09	0.10	0.09	0.08	-2.32	-2.46	-2.60
10.0	0.04	0.03	0.03	0.03	0.03	0.03	-3.41	-3.43	-3.46
15.0	0.03	0.03	0.03	0.03	0.02	0.02	-3.68	-3.72	-3.77
20.0	0.03	0.02	0.02	0.03	0.02	0.02	-3.58	-3.85	-4.11
25.0	0.02	0.02	0.02	0.02	0.02	0.02	-3.80	-3.83	-3.87
30.0	0.02	0.02	0.02	0.02	0.02	0.02	-3.87	-3.86	-3.86
35.0	0.02	0.02	0.02	0.02	0.02	0.02	-3.84	-3.85	-3.87

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



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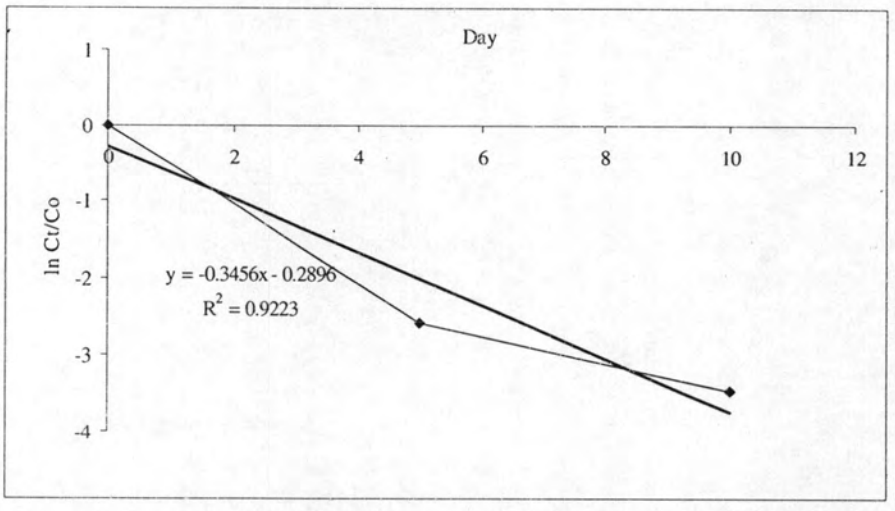


Figure C-17 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 1.0 mg/l under anaerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-34 First order degradation rate constants and standard deviation

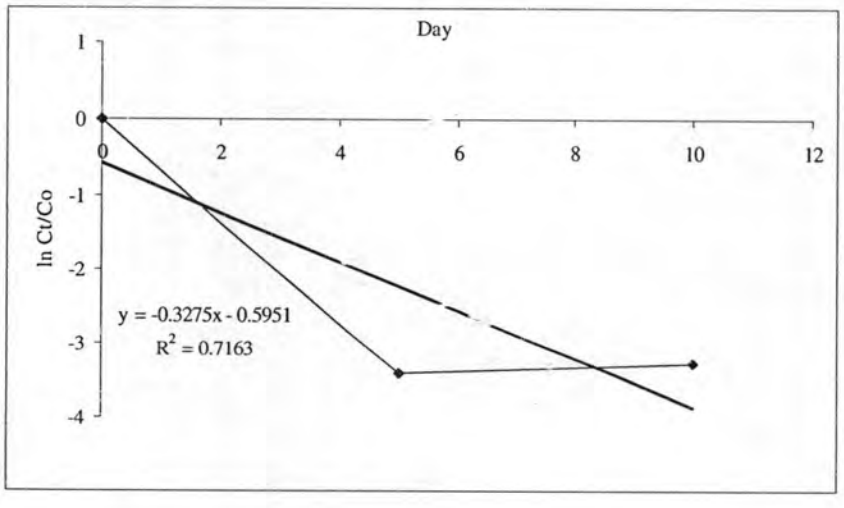
K1	R1	K2	R2	K*	R*	SD
0.34	0.96	0.35	0.92	0.34	0.94	0.01

Table C-35 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 3.0 mg/l under anaerobic condition

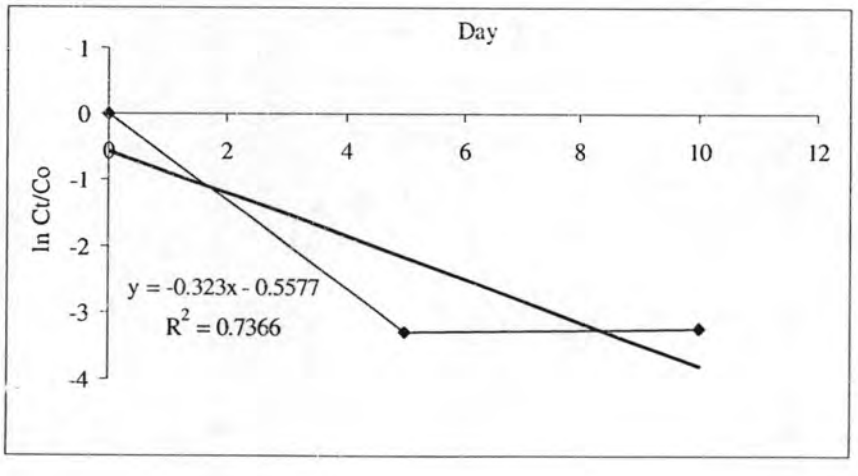
Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	3.16	2.94	3.05	1.04	1.00	0.97	0.00	0.00	0.00
5.0	0.11	0.09	0.10	0.04	0.03	0.03	-3.29	-3.42	-3.56
10.0	0.12	0.11	0.12	0.04	0.04	0.04	-3.23	-3.28	-3.32
15.0	0.10	0.08	0.09	0.03	0.03	0.03	-3.47	-3.55	-3.62
20.0	0.06	0.04	0.05	0.02	0.02	0.02	-3.87	-4.05	-4.23
25.0	0.07	0.07	0.07	0.02	0.02	0.02	-3.76	-3.78	-3.80
30.0	0.06	0.05	0.06	0.02	0.02	0.02	-3.92	-4.02	-4.12
35.0	0.07	0.04	0.06	0.02	0.02	0.01	-3.81	-4.05	-4.30

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



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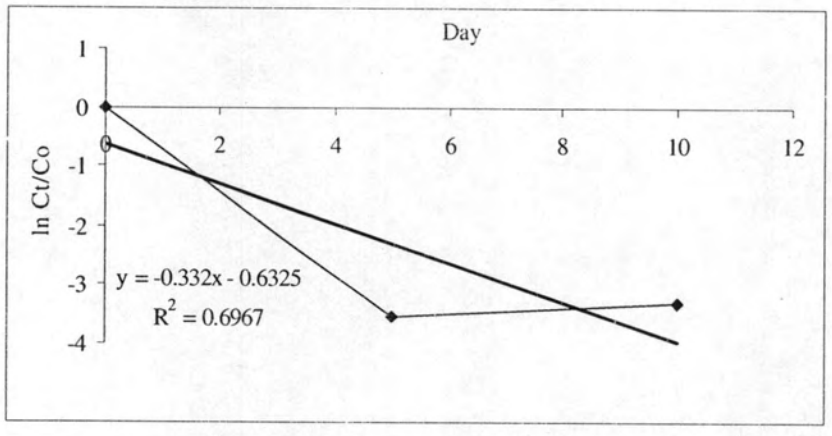


Figure C-18 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 3.0 mg/l under anaerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-36 First order degradation rate constants and standard deviation

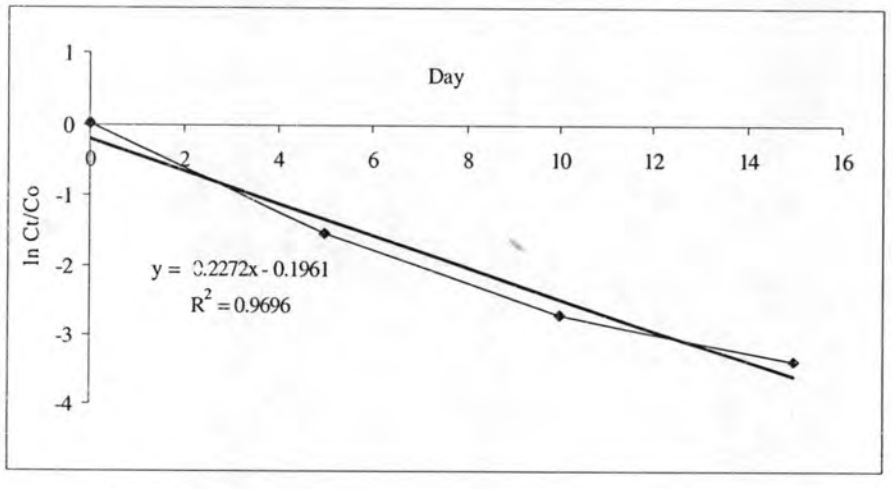
K1	R1	K2	R2	K*	R*	SD
0.32	0.74	0.33	0.70	0.33	0.72	0.01

Table C-37 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 5.0 mg/l under anaerobic condition

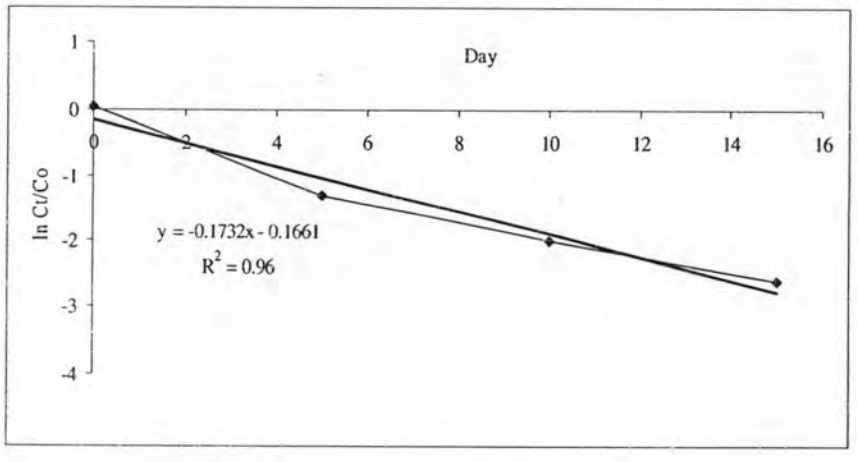
Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	5.29	5.03	5.16	1.05	1.03	1.00	0.05	0.02	0.00
5.0	1.37	0.84	1.11	0.27	0.22	0.17	-1.30	-1.55	-1.79
10.0	0.68	0.17	0.42	0.13	0.08	0.03	-2.01	-2.71	-3.40
15.0	0.37	0.08	0.23	0.07	0.05	0.02	-2.60	-3.38	-4.15
20.0	0.20	0.13	0.17	0.04	0.03	0.03	-3.20	-3.45	-3.70
25.0	0.09	0.08	0.09	0.02	0.02	0.02	-4.01	-4.06	-4.10
30.0	0.08	0.07	0.08	0.02	0.02	0.02	-4.18	-4.20	-4.22
35.0	0.08	0.06	0.07	0.02	0.01	0.01	-4.19	-4.29	-4.40

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

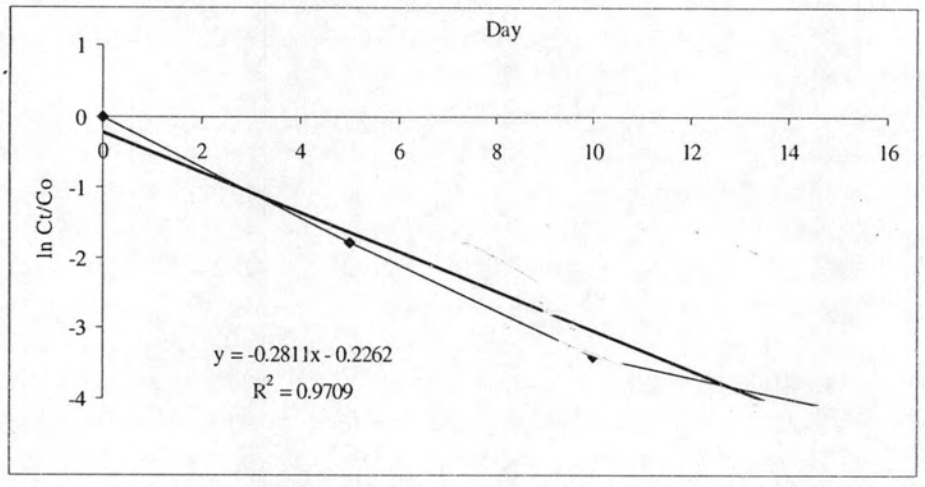


Figure C-19 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 5.0 mg/l under anaerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-38 First order degradation rate constants and standard deviation

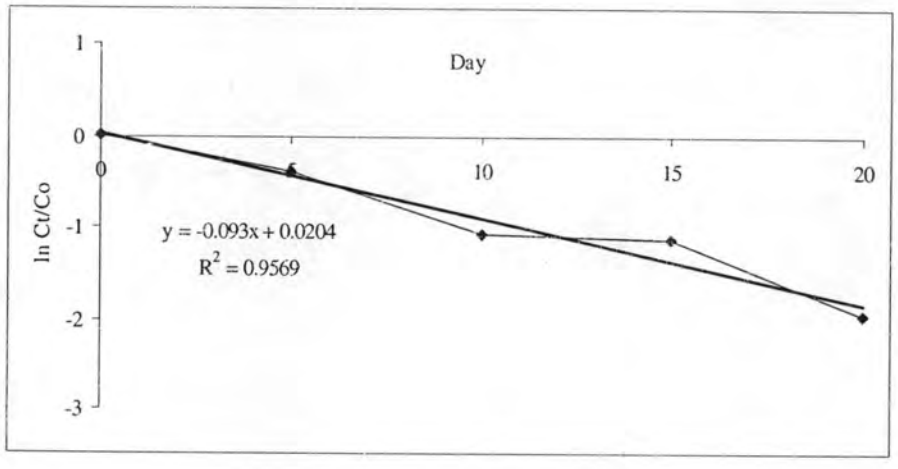
K1	R1	K2	R2	K*	R*	SD
0.17	0.96	0.28	0.97	0.23	0.97	0.08

Table C-39 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 10.0 mg/l under anaerobic condition

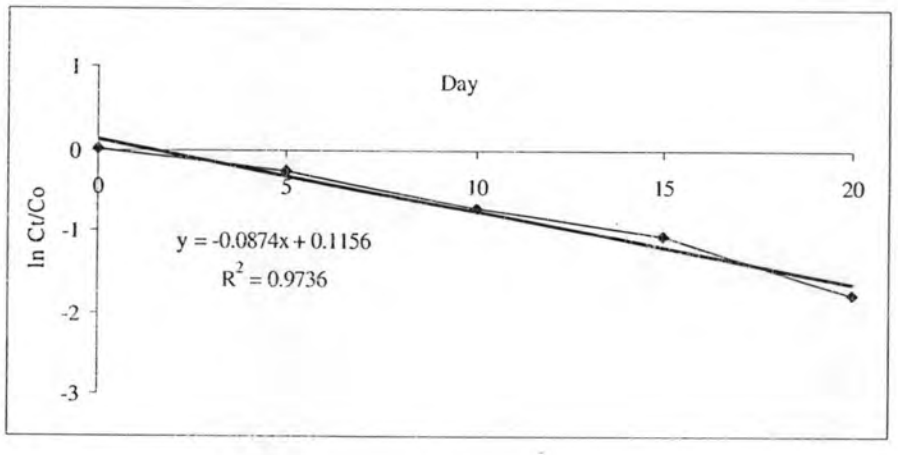
Day	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	10.47	10.36	10.41	1.00	1.00	1.00	0.00	0.00	0.00
5.0	8.01	7.03	7.52	0.68	0.77	0.72	-0.39	-0.27	-0.33
10.0	5.11	3.55	4.33	0.34	0.49	0.42	-1.07	-0.72	-0.90
15.0	3.55	3.32	3.43	0.32	0.34	0.33	-1.14	-1.08	-1.11
20.0	1.77	1.48	1.62	0.14	0.17	0.16	-1.95	-1.78	-1.86
25.0	1.28	1.14	1.21	0.11	0.12	0.12	-2.20	-2.10	-2.15
30.0	1.20	0.88	1.04	0.09	0.12	0.10	-2.46	-2.16	-2.31
35.0	0.99	0.80	0.89	0.08	0.09	0.09	-2.57	-2.36	-2.46

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

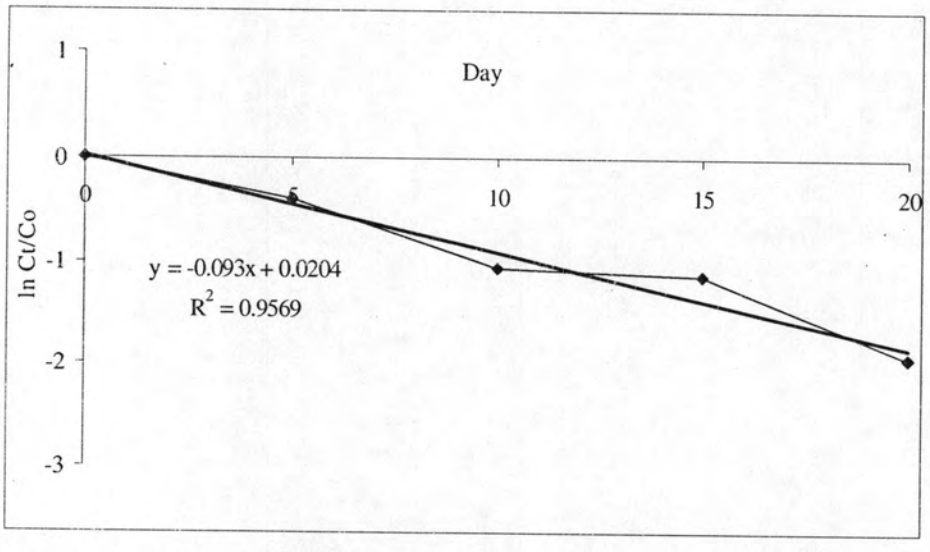


Figure C-20 Calculation of first order degradation rate constant of MT using sediment at an initial MT concentration of 10.0 mg/l under anaerobic condition (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-40 First order degradation rate constants and standard deviation

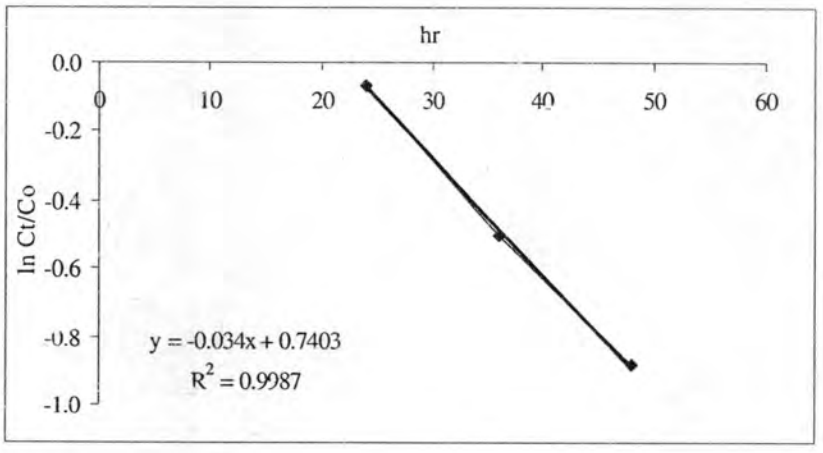
K1	R1	K2	R2	K*	R*	SD
0.09	0.97	0.09	0.96	0.09	0.96	0.01

Table C-41 Calculation of first order degradation rate constant of MT using Strain MT 3/10 at an initial MT concentration of 3.0 mg/l

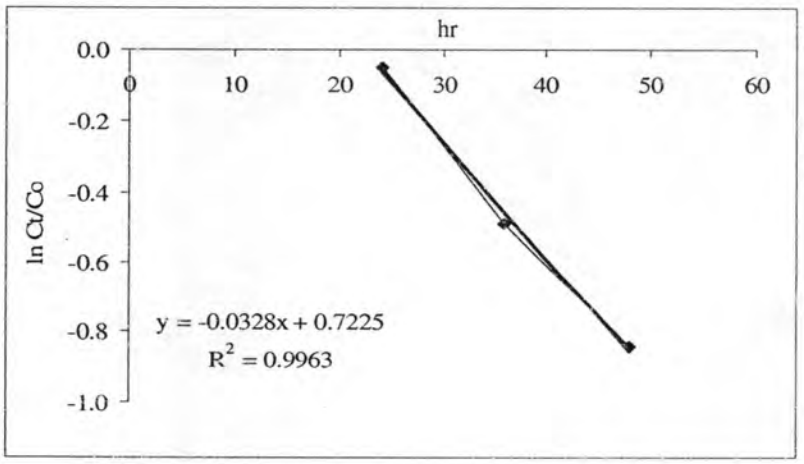
Hour	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	3.16	3.17	3.16	1.00	1.00	1.00	0.00	0.00	0.00
12.0	2.88	3.04	2.96	0.91	0.96	0.94	-0.09	-0.04	-0.07
16.0	2.76	3.05	2.90	0.87	0.96	0.92	-0.14	-0.04	-0.09
24.0	2.91	3.01	2.96	0.92	0.95	0.94	-0.08	-0.05	-0.07
36.0	1.89	1.95	1.92	0.60	0.62	0.61	-0.52	-0.49	-0.50
48.0	1.25	1.37	1.31	0.40	0.43	0.41	-0.93	-0.84	-0.88
60.0	1.30	1.36	1.33	0.41	0.43	0.42	-0.89	-0.84	-0.87

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

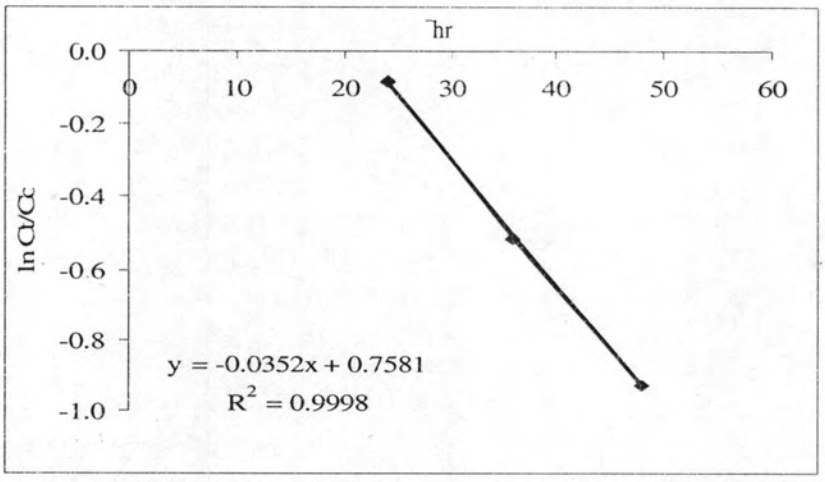


Figure C-21 Calculation of first order degradation rate constant of MT using Strain MT 3/10 at an initial MT concentration of 3.0 mg/l (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-42 First order degradation rate constants and standard deviation

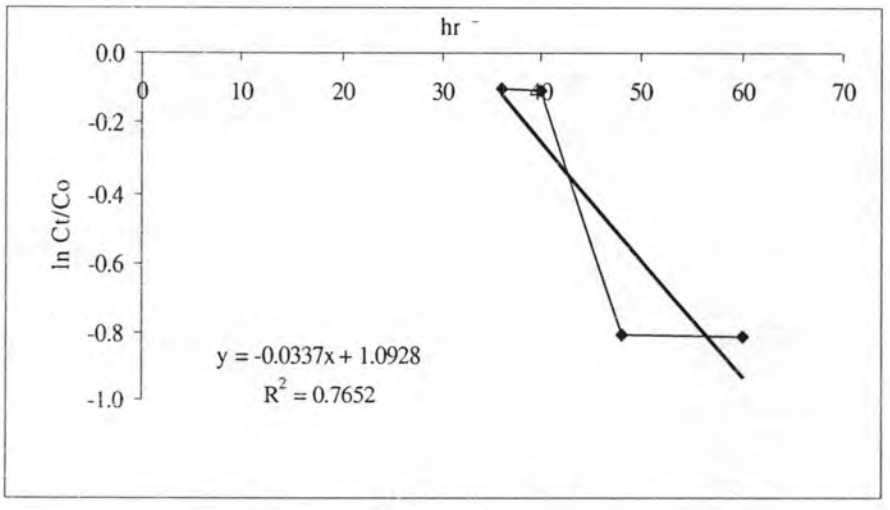
K1	R1	K2	R2	K*	R*	SD
0.03	1.00	0.04	1.00	0.03	1.00	0.01

Table C- 43 Calculation of first order degradation rate constant of MT using Strain MT 3/10 at an initial MT concentration of 10.0 mg/l

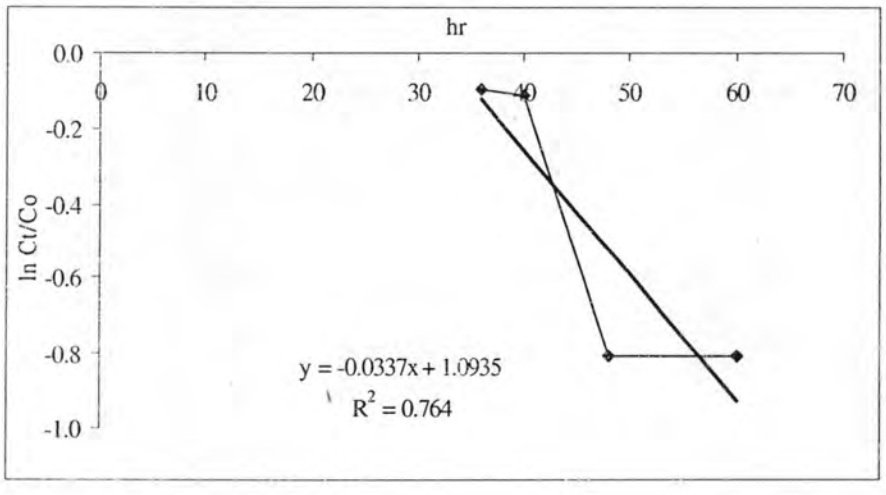
Hour	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	11.36	11.30	11.33	1.00	1.00	1.00	0.00	0.00	0.00
8.0	9.93	9.93	9.93	0.88	0.88	0.88	-0.13	-0.13	-0.13
16.0	10.45	10.42	10.44	0.92	0.92	0.92	-0.08	-0.08	-0.08
36.0	10.33	10.13	10.23	0.91	0.90	0.90	-0.09	-0.11	-0.10
40.0	10.18	10.17	10.17	0.90	0.90	0.90	-0.11	-0.11	-0.11
48.0	5.06	5.02	5.04	0.45	0.44	0.45	-0.81	-0.81	-0.81
60.0	5.07	4.99	5.03	0.45	0.44	0.44	-0.81	-0.82	-0.81
68.0	5.07	5.05	5.06	0.45	0.45	0.45	-0.81	-0.81	-0.81

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

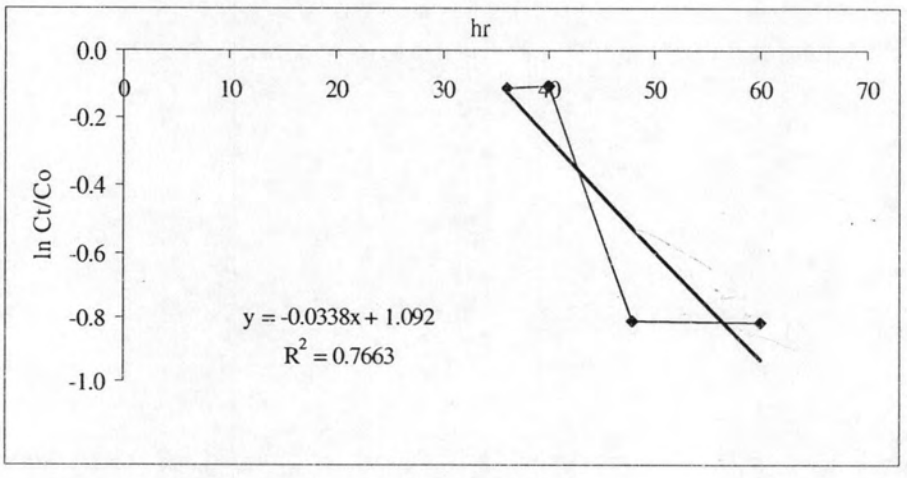


Figure C-22 Calculation of first order degradation rate constant of MT using Strain MT 3/10 at an initial MT concentration of 10.0 mg/l (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-44 First order degradation rate constants and standard deviation

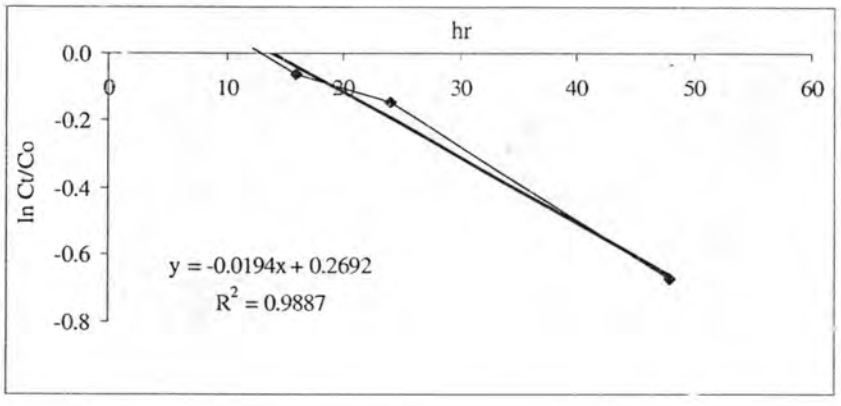
K1	R1	K2	R2	K*	R*	SD
0.03	0.76	0.03	0.77	0.03	0.77	0.01

Table C-45 Calculation of first order degradation rate constant of MT using Strain MT 3/10 at an initial MT concentration of 15.0 mg/l

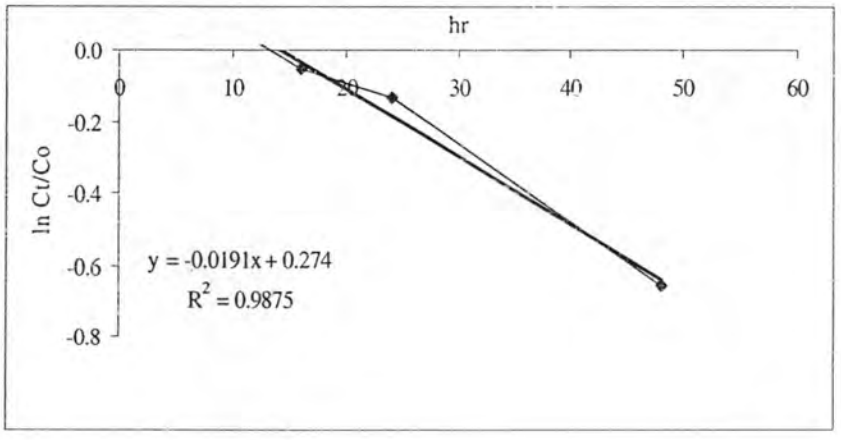
Hour	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	14.66	14.61	14.64	1.00	1.00	1.00	0.00	0.00	0.00
12.0	14.92	15.02	14.97	1.03	1.02	1.02	0.03	0.02	0.02
16.0	13.62	13.89	13.75	0.95	0.93	0.94	-0.05	-0.07	-0.06
24.0	12.50	12.80	12.65	0.88	0.85	0.86	-0.13	-0.16	-0.15
48.0	7.34	7.57	7.46	0.52	0.50	0.51	-0.66	-0.69	-0.68
56.0	7.29	7.33	7.31	0.50	0.50	0.50	-0.69	-0.70	-0.69
68.0	7.26	7.28	7.27	0.50	0.50	0.50	-0.70	-0.70	-0.70

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

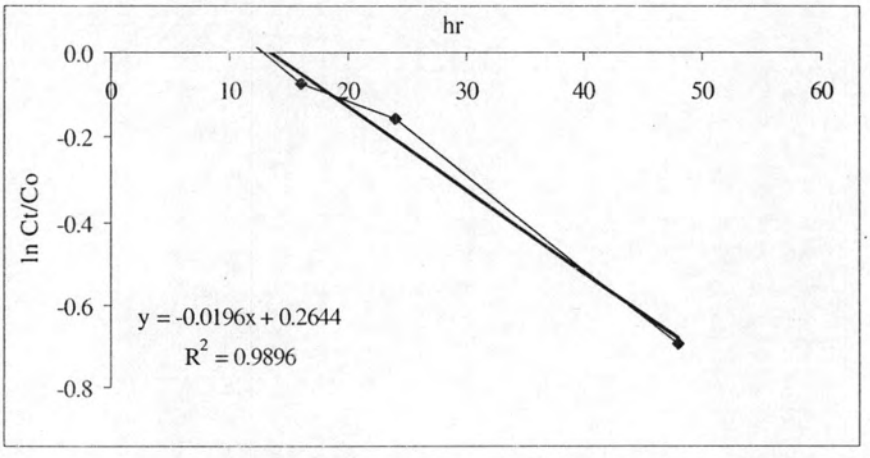


Figure C-23 Calculation of first order degradation rate constant of MT using Strain MT 3/10 at an initial MT concentration of 15.0 mg/l (a for ln Ct/Co*, b for ln Ct_1/ $Co_1$and c for ln Ct_2/Co_2)

Table C-46 First order degradation rate constants and standard deviation

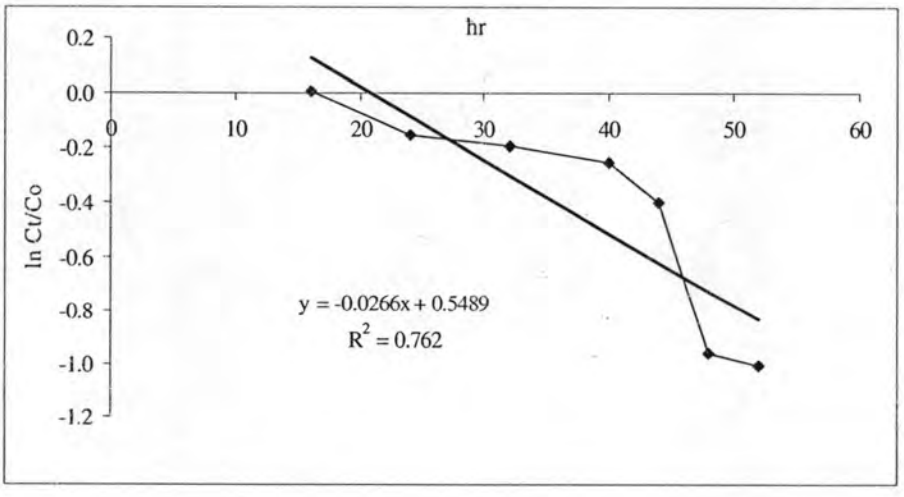
K1	R1	K2	R2	K*	R*	SD
0.02	0.99	0.02	1.00	0.02	0.99	0.01

Table C-47 Calculation of first order degradation rate constant of MT using Strain MT 3/10 at an initial MT concentration of 115.0 mg/l

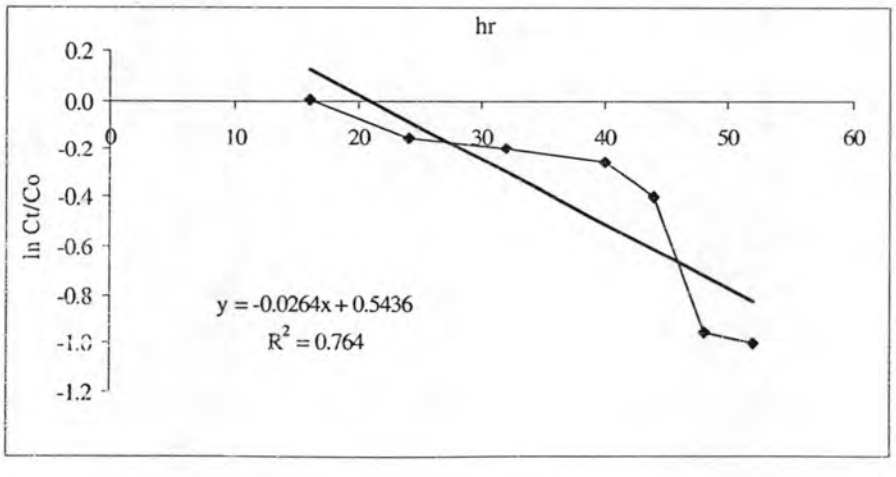
Hour	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0	115.30	115.05	115.17	1.00	1.00	1.00	0.00	0.00	0.00
12	115.12	115.08	115.10	1.00	1.00	1.00	0.00	0.00	0.00
16	115.61	115.52	115.57	1.00	1.00	1.00	0.00	0.00	0.00
24	99.02	98.70	98.86	0.86	0.86	0.86	-0.15	-0.15	-0.15
32	95.00	94.96	94.98	0.82	0.83	0.83	-0.19	-0.19	-0.19
40	89.39	89.32	89.36	0.78	0.78	0.78	-0.26	-0.25	-0.25
44	77.11	77.09	77.10	0.67	0.67	0.67	-0.40	-0.40	-0.40
48	44.41	44.07	44.24	0.39	0.38	0.38	-0.95	-0.96	-0.96
52	42.61	41.65	42.13	0.37	0.36	0.37	-1.00	-1.02	-1.01
60	42.52	42.23	42.37	0.37	0.37	0.37	-1.00	-1.00	-1.00

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



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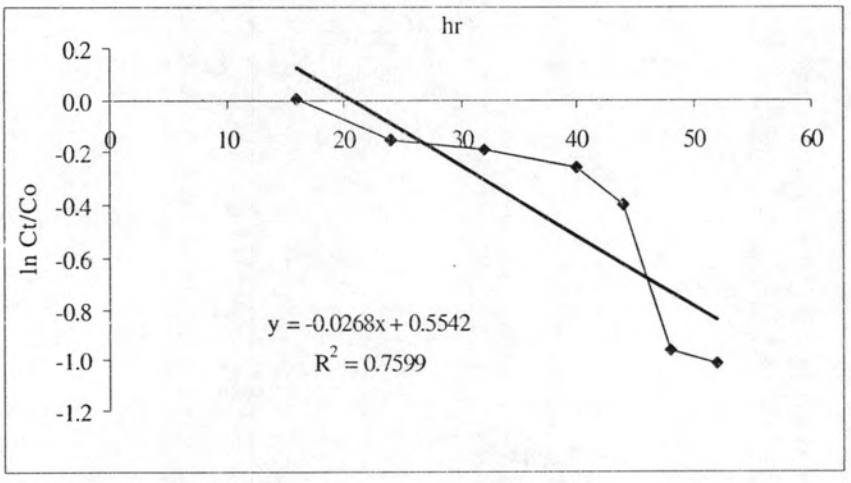


Figure C-24 Calculation of first order degradation rate constant of MT using Strain MT 3/10 at an initial MT concentration of 115.0 mg/l (a for ln Ct/Co*, b for ln Ct_1/ $Co_1$and c for ln Ct_2/Co_2)

Table C-48 First order degradation rate constants and standard deviation

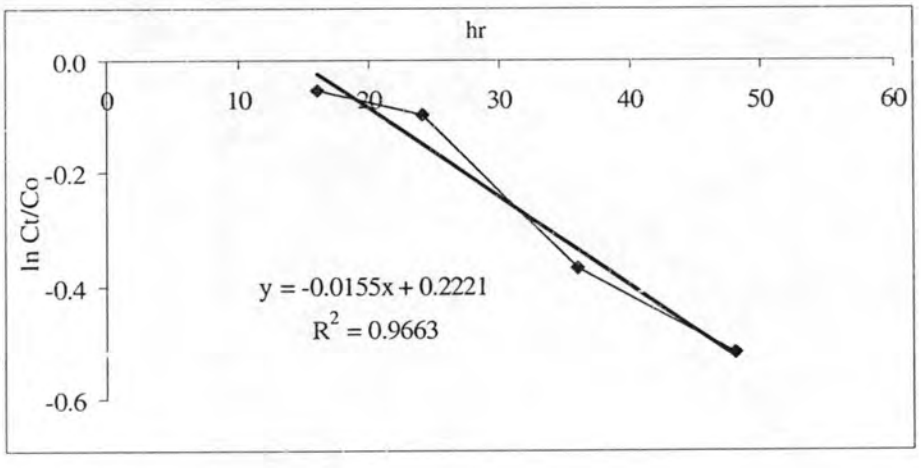
K1	R1	K2	R2	K*	R*	SD
0.03	0.76	0.03	0.76	0.03	0.76	0.01

Table C-49 Calculation of first order degradation rate constant of MT using Strain MT 1/500 at an initial MT concentration of 3.0 mg/l

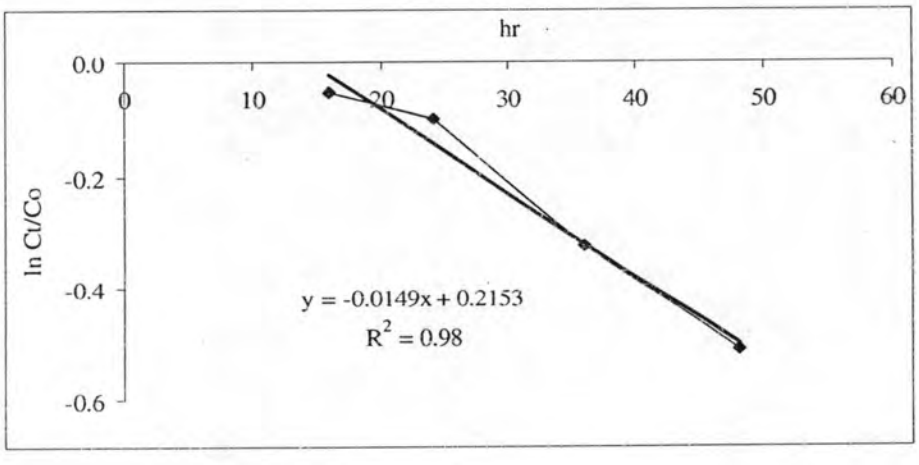
Hour	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0	3.22	3.16	3.19	1.00	1.00	1.00	0.00	0.00	0.00
12	3.04	2.88	2.96	0.95	0.91	0.93	-0.06	-0.09	-0.07
16	3.05	2.98	3.02	0.95	0.94	0.95	-0.05	-0.06	-0.06
24	2.91	2.88	2.89	0.90	0.91	0.91	-0.10	-0.09	-0.10
36	2.33	2.08	2.20	0.73	0.66	0.69	-0.32	-0.42	-0.37
48	1.93	1.87	1.90	0.60	0.59	0.60	-0.51	-0.52	-0.52
60	1.98	1.91	1.94	0.62	0.61	0.61	-0.49	-0.50	-0.49

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

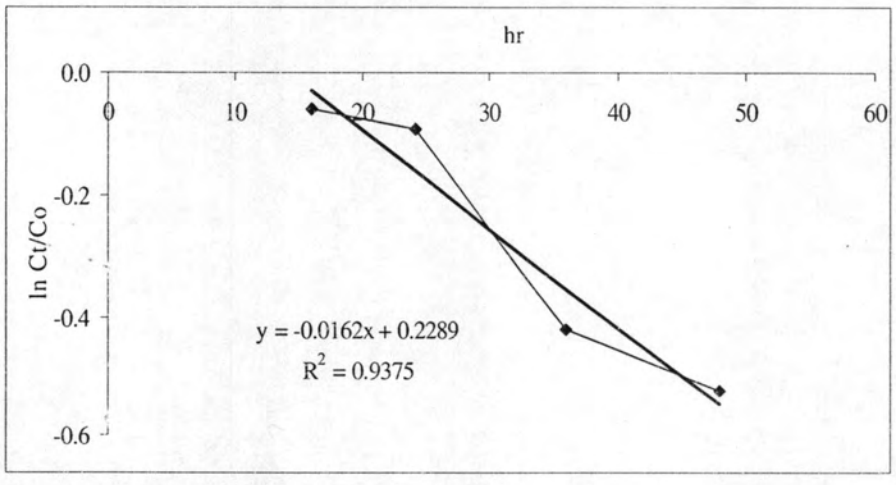


Figure C-25 Calculation of first order degradation rate constant of MT using Strain MT 1/500 at an initial MT concentration of 3.0 (a for ln Ct/Co*, b for ln Ct_1/ Co_1 and c for ln Ct_2/Co_2)

Table C-50 First order degradation rate constants and standard deviation

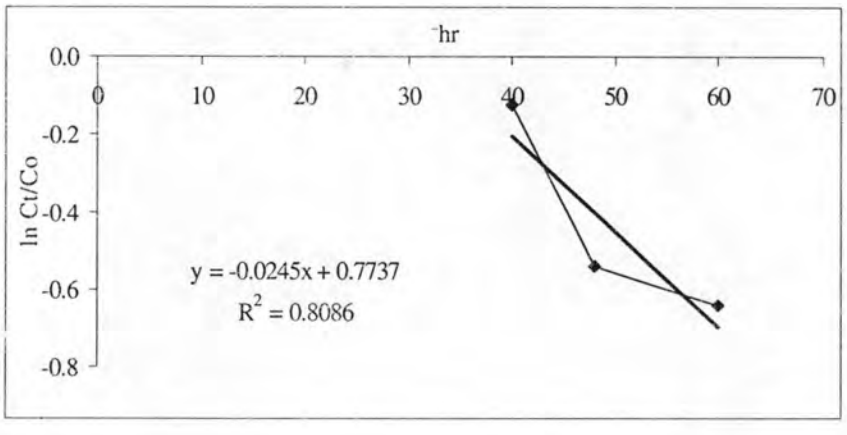
K1	R1	K2	R2	K*	R*	SD
0.02	0.98	0.02	0.94	0.02	0.97	0.01

Table C-51 Calculation of first order degradation rate constant of MT using Strain MT 1/500 at an initial MT concentration of 10.0 mg/l

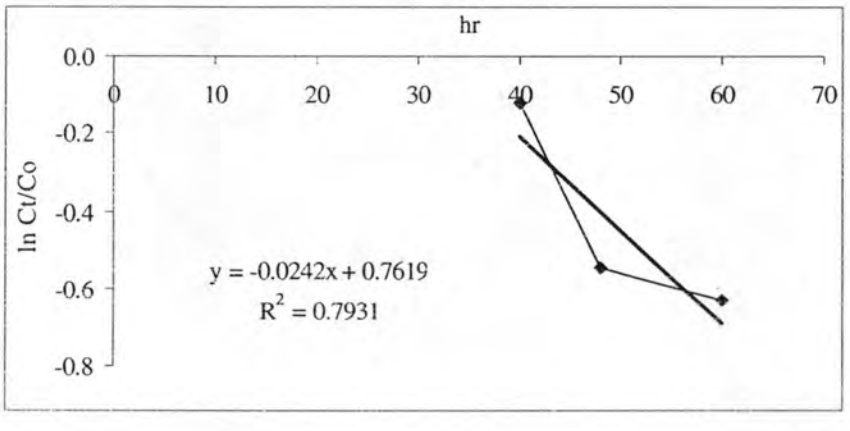
Hour	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	11.55	11.36	11.45	1.00	1.00	1.00	0.00	0.00	0.00
8.0	9.84	9.64	9.74	0.85	0.85	0.85	-0.16	-0.16	-0.16
16.0	10.45	10.42	10.44	0.91	0.92	0.91	-0.10	-0.09	-0.09
36.0	10.33	10.13	10.23	0.90	0.89	0.89	-0.11	-0.11	-0.11
40.0	10.18	10.06	10.12	0.88	0.89	0.88	0.13	-0.12	-0.12
48.0	6.76	6.59	6.68	0.59	0.58	0.58	-0.54	-0.54	-0.54
60.0	6.04	6.02	6.03	0.52	0.53	0.53	-0.65	-0.63	-0.64
68.0	6.03	6.00	6.02	0.52	0.53	0.53	-0.65	-0.64	-0.64

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

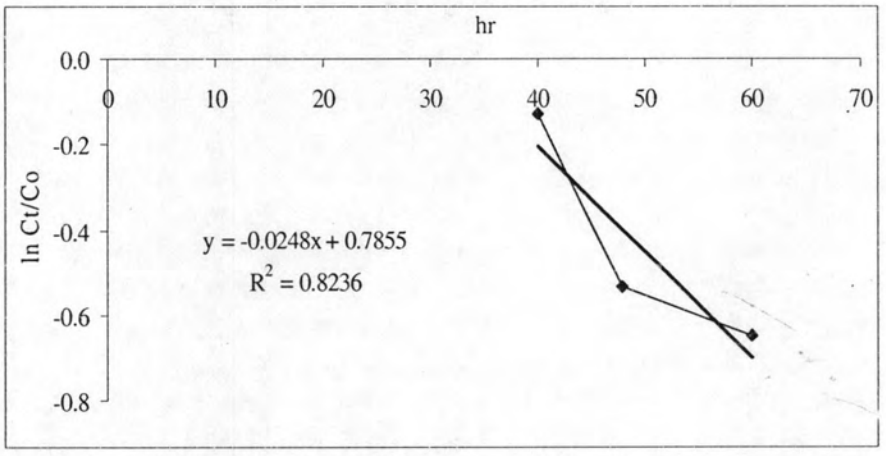


Figure C-26 Calculation of first order degradation rate constant of MT using Strain MT 1/500 at an initial MT concentration of 10.0 mg/l (a for ln Ct/Co*, b for ln Ct_1/Co_1 and c for ln Ct_2/Co_2)

Table C-52 First order degradation rate constants and standard deviation

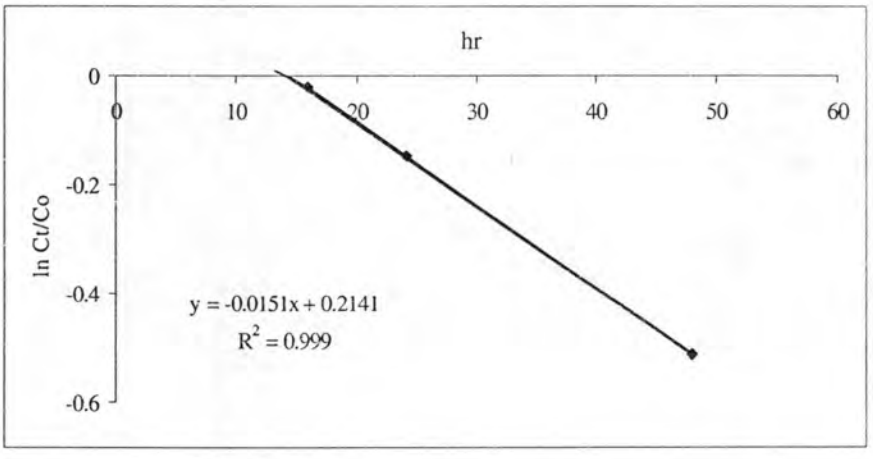
K1	R1	K2	R2	K*	R*	SD
0.02	0.79	0.03	0.82	0.03	0.81	0.01

Table C-53 Calculation of first order degradation rate constant of MT using Strain MT 1/500 at an initial MT concentration of 15.0 mg/l

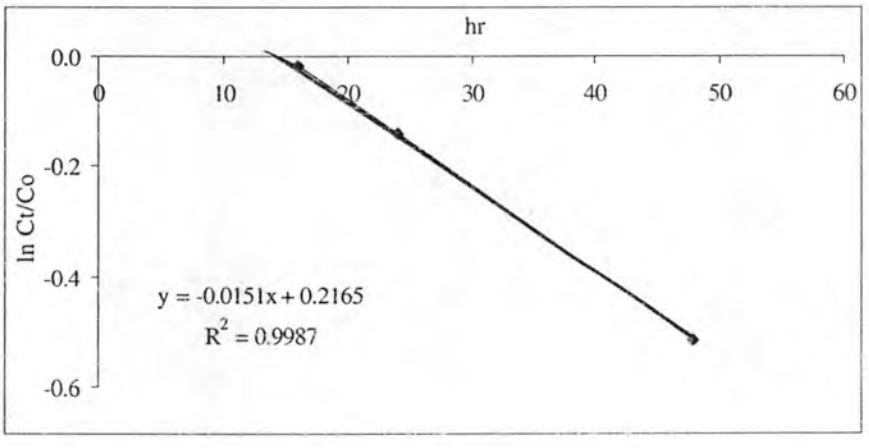
Hour	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	14.66	14.59	14.63	1.00	1.00	1.00	0.00	0.00	0.00
12.0	15.02	14.92	14.97	1.02	1.02	1.02	0.02	0.02	0.02
16.0	14.39	14.31	14.35	0.98	0.98	0.98	-0.02	-0.02	-0.02
24.0	12.75	12.50	12.63	0.87	0.86	0.86	-0.14	-0.16	-0.15
48.0	8.78	8.72	8.75	0.60	0.60	0.60	-0.51	-0.52	-0.51
56.0	8.63	8.61	8.62	0.59	0.59	0.59	-0.53	-0.53	-0.53
68.0	8.70	8.64	8.67	0.59	0.59	0.59	-0.52	-0.52	-0.52

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



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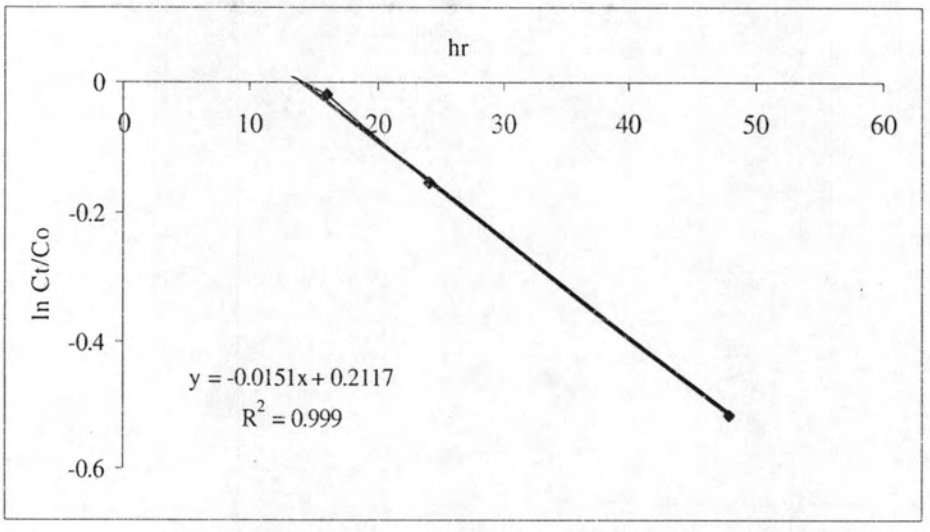


Figure C-27 Calculation of first order degradation rate constant of MT using Strain MT 1/500 at an initial MT concentration of 15.0 mg/l (a for ln Ct/Co*, b for ln Ct_1/Co_1 and c for ln Ct_2/Co_2)

Table C-54 First order degradation rate constants and standard deviation

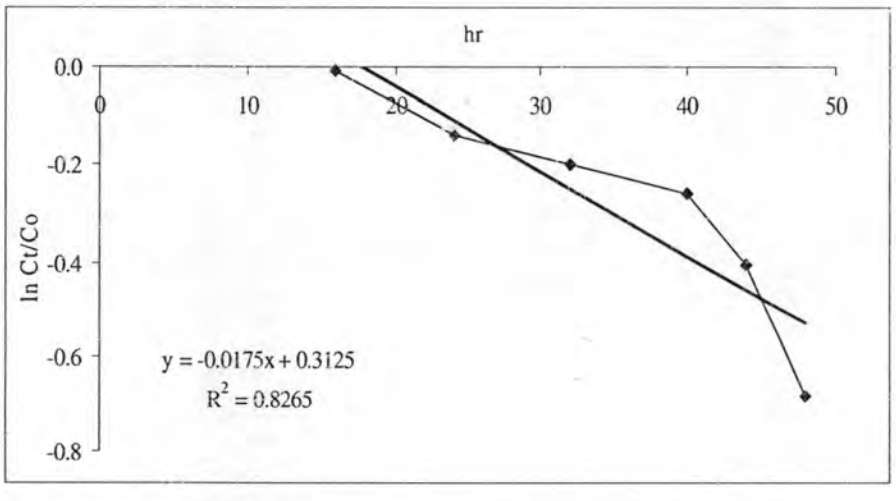
K1	R1	K2	R2	K*	R*	SD
0.02	1.00	0.02	1.00	0.02	1.00	0.01

Table C-55 Calculation of first order degradation rate constant of MT using Strain MT 1/500 at an initial MT concentration of 100.0 mg/l

Hour	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	115.87	115.72	115.79	1.00	1.00	1.00	0.00	0.00	0.00
12.0	115.12	115.02	115.07	0.99	0.99	0.99	-0.01	-0.01	-0.01
16.0	115.12	115.04	115.08	0.99	0.99	0.99	-0.01	-0.01	-0.01
24.0	100.71	100.55	100.63	0.87	0.87	0.87	-0.14	-0.14	-0.14
32.0	95.00	94.96	94.98	0.82	0.82	0.82	-0.20	-0.20	-0.20
40.0	89.39	89.32	89.36	0.77	0.77	0.77	-0.26	-0.26	-0.26
44.0	77.11	77.09	77.10	0.67	0.67	0.67	-0.41	-0.41	-0.41
48.0	58.38	58.35	58.37	0.50	0.50	0.50	-0.69	-0.69	-0.69
52.0	57.94	57.94	57.94	0.50	0.50	0.50	-0.69	-0.69	-0.69
60.0	57.94	57.57	57.75	0.50	0.50	0.50	-0.69	-0.70	-0.70

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



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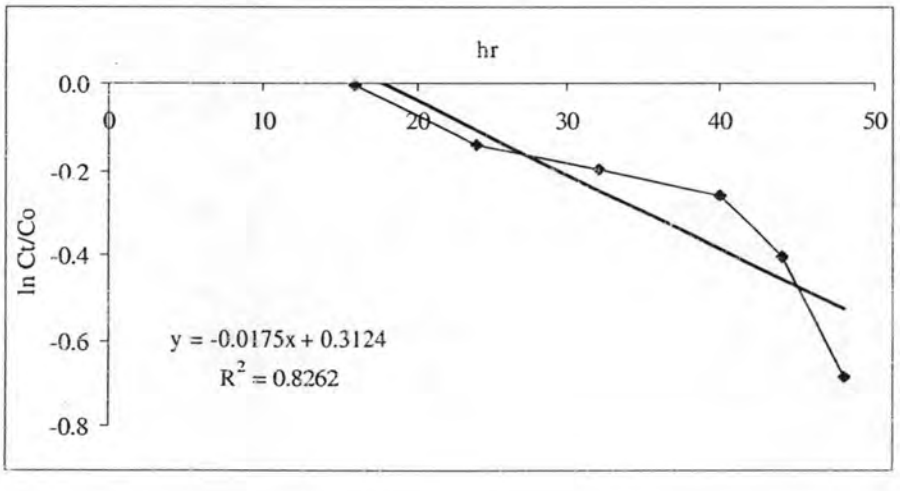

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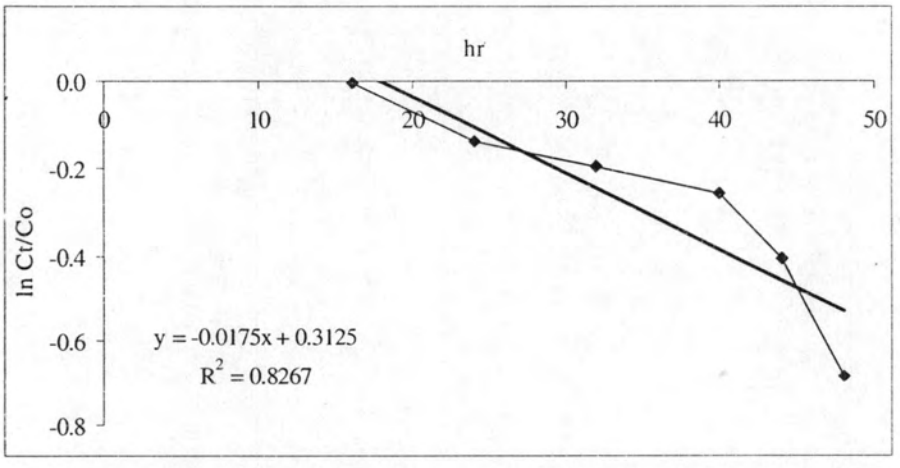


Figure C-28 Calculation of first order degradation rate constant of MT using Strain MT 1/500 at an initial MT concentration of 100.0 mg/l (a for ln Ct/Co*, b for ln Ct_1/Co_1 and c for ln Ct_2/Co_2)

Table C-56 First order degradation rate constants and standard deviation

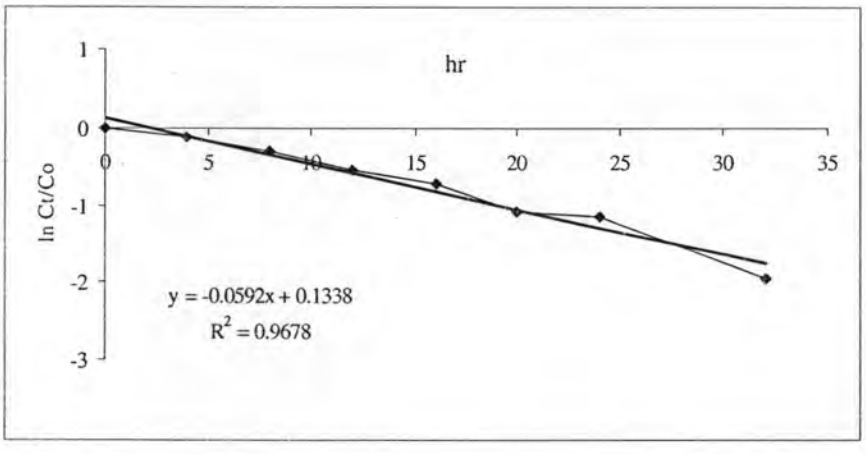
K1	R1	K2	R2	K*	R*	SD
0.02	0.83	0.02	0.83	0.02	0.83	0.01

Table C-57 Calculation of first order degradation rate constant of MT using Strain MT 3/100 at an initial MT concentration of 100.0 mg/l

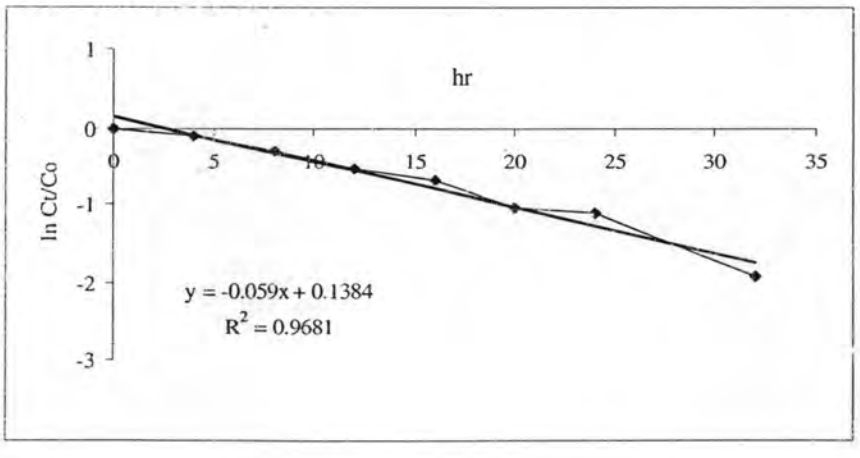
Hour	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	105.62	105.34	105.48	1.00	1.00	1.00	0.00	0.00	0.00
4.0	95.67	93.40	94.54	0.91	0.89	0.90	-0.10	-0.12	-0.11
8.0	78.84	77.51	78.18	0.75	0.74	0.74	-0.29	-0.31	-0.30
12.0	62.09	60.78	61.43	0.59	0.58	0.58	-0.53	-0.55	-0.54
16.0	52.33	51.09	51.71	0.50	0.49	0.49	-0.70	-0.72	-0.71
20.0	36.83	35.92	36.38	0.35	0.34	0.35	-1.05	-1.08	-1.07
24.0	34.44	34.08	34.26	0.33	0.32	0.33	-1.12	-1.13	-1.13
32.0	15.29	14.75	15.02	0.15	0.14	0.14	-1.93	-1.97	-1.95
40.0	14.35	14.07	14.21	0.14	0.13	0.14	-2.00	-2.01	-2.01
48.0	12.30	12.10	12.20	0.12	0.12	0.12	-2.15	-2.16	-2.16
56.0	9.33	9.22	9.27	0.09	0.09	0.09	-2.43	-2.44	-2.43
60.0	7.43	7.08	7.26	0.07	0.07	0.07	-2.66	-2.70	-2.68
68.0	0.49	0.46	0.47	0.01	0.00	0.00	-5.38	-5.43	-5.41

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

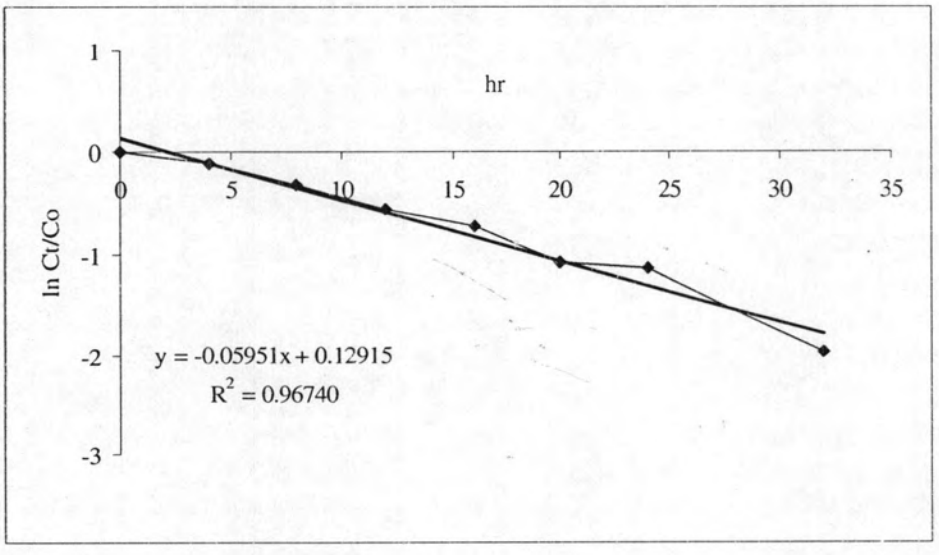


Figure C-29 Calculation of first order degradation rate constant of MT using Strain MT 3/100 at an initial MT concentration of 100.0 mg/l (a for ln Ct/Co*, b for ln Ct_1/Co_1 and c for ln Ct_2/Co_2)

Table C-58 First order degradation rate constants and standard deviation

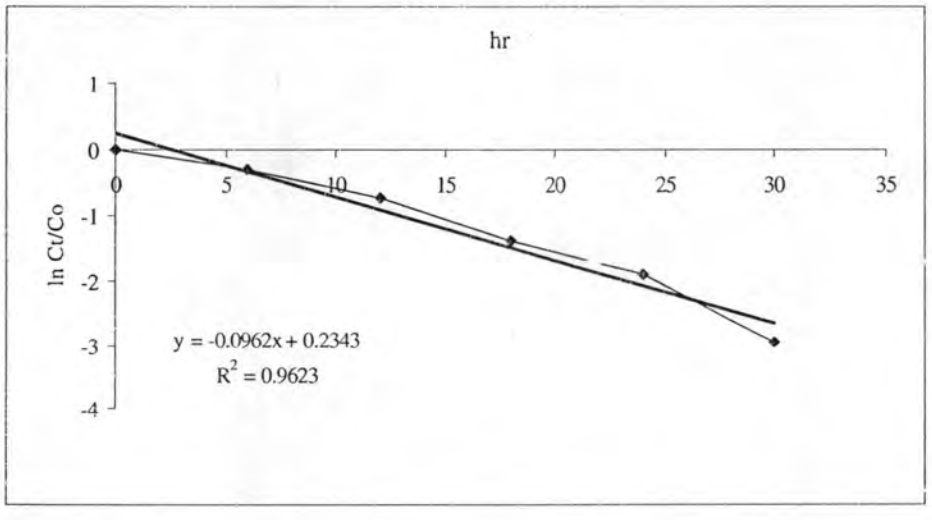
K1	R1	K2	R2	K*	R*	SD
0.06	0.97	0.06	0.97	0.06	0.97	0.01

Table C-59 Calculation of first order degradation rate constant of MT using Strain MT 3/500 at an initial MT concentration of 500.0 mg/l

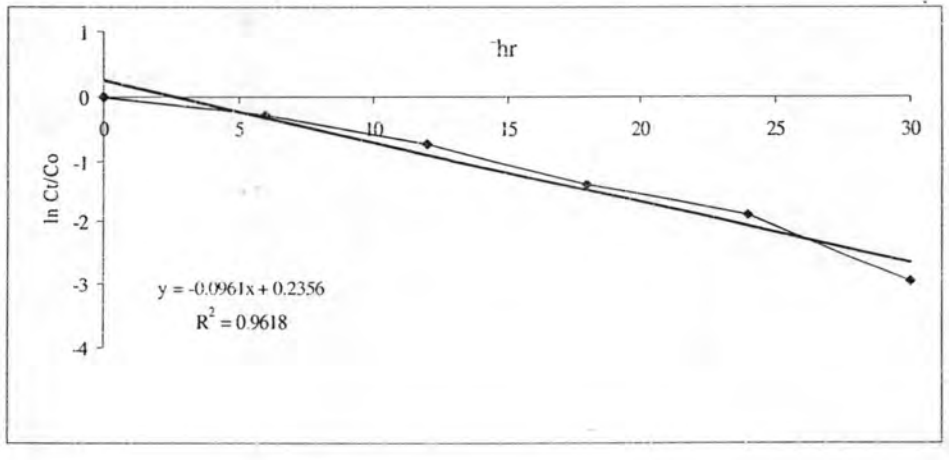
Hour	$Conc_1$	$Conc_2$	Conc*	Ct_1/Co_1	Ct_2/Co_2	Ct/Co*	ln Ct_1/Co_1	ln Ct_2/Co_2	ln Ct/Co*
0.0	506.31	506.05	506.18	1.00	1.00	1.00	0.00	0.00	0.00
6.0	378.08	376.15	377.12	0.75	0.74	0.75	-0.29	-0.30	-0.29
12.0	245.66	244.25	244.95	0.49	0.48	0.48	-0.72	-0.73	-0.73
18.0	126.26	125.67	125.97	0.25	0.25	0.25	-1.39	-1.39	-1.39
24.0	76.81	76.07	76.44	0.15	0.15	0.15	-1.89	-1.90	-1.89
30.0	26.55	26.50	26.53	0.05	0.05	0.05	-2.95	-2.95	-2.95
42.0	18.24	17.49	17.87	0.04	0.04	0.04	-3.32	-3.37	-3.34
48.0	14.97	12.89	13.93	0.03	0.03	0.03	-3.52	-3.59	-3.56
60.0	2.79	2.43	2.61	0.01	0.01	0.01	-5.20	-5.34	-5.27
68.0	1.61	1.50	1.55	0.00	0.00	0.00	-5.75	-5.82	-5.79

Conc. = Concentration (mg/l)
Conc* = Average concentration (mg/l)
Co = Concentration (mg/l) at day zero
Ct = Concentration (mg/l) at experimental time
Ct/Co* = Average Ct/Co
ln Ct/Co* = Average ln Ct/Co

a)



b)



c)

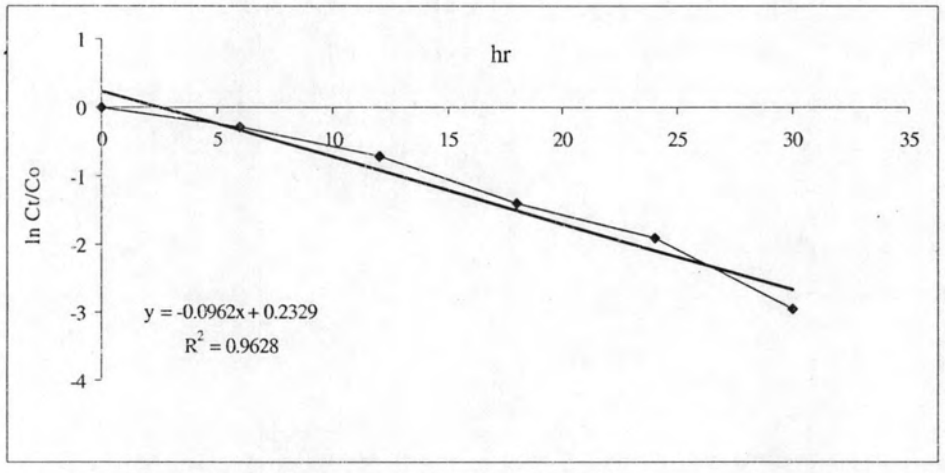


Figure C-30 Calculation of first order degradation rate constant of MT using Strain MT 3/500 at an initial MT concentration of 500.0 mg/l (a for ln Ct/Co*, b for ln Ct_1/Co_1 and c for ln Ct_2/Co_2)

Table C-60 First order degradation rate constants and standard deviation

K_1	R_1	K_2	R_2	K*	R*	SD
0.10	0.96	0.10	0.96	0.10	0.96	0.00

APPENDIX D

16S rRNA Gene Sequences of isolated MT-degrading bacteria.

>MT 3/10

AGAANATCGCCCTCCTTGCGGTTAGGCTAACTACTTCTGGCAGAACCCGCTCC
CATGGTGTGACGGGCGGTGTGTACAAGACCCGGGAACGTATTCACCGCGACA
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GCGATCCGGACTACGACTGGCTTTATGGGATTGGCTCCCCCTCGCGGGTTGGC
AACCCTCTGTACCAGCCATTGTATGACGTGTGAACCCCCACCTAAAGGGCCA
TGAGGACTTGACGTCATCCCCACTTCCTCCGGGTTGTCACCGGCAGTCTCANT
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CTACCTAANCTGCCATCGGCCGCTCCGTGAGCGCAAGGCCTTGCGGTCCCCT
GCTTTCATCCTGAGATCGTATGCGGTATTAGCAAAGCTTTCGCTTCGTTATCC
CCCACTCTCGGGCACGTTCCGATGTATTACTCACCCGTTCGCCACTCGTCAGC
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>MT 1/500

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TCGGACCTTACGTTATAAGAGCGGCCGATATCTGATTAGCTAGTTGGTGGGGT
AATGGCCTACCAAGGCGACGATCAGTAGCTGGTCTGAGAGGACGACCAGCC
ACACTGGAACTGAGACACGGTCCAGACTCCTAC

>MT 5/10

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CTTAGCAAGCTAAGGTTCATCGTTCGACTTGCATGGCATTCCGCGTGAGTGAA
GAAGGCCTTCGGGTTGTAAAGCT

BIOGRAPHY

Miss Theerachit Wattanodorn was born on July 15, 1982 in Bangkok, Thailand. She obtained her B.Sc. Degree in Environmental technology from the Faculty of Environmental and Resource Studies of Mahidol University in 2004. She pursued her Master's degree studies at the International Postgraduate Programs in Environmental Management, Inter-Department of Environment Management, Chulalongkorn University, Bangkok, Thailand in May 2005. She finished her Master's of Science Degree in Environmental Management in October 2007.