

Appendix B

Table B1: Kinetic study of photodegradation of the dye (DB-199) for System 1*

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	43	89	177	268	194
10	37	68	156	231	171
15	29	54	128	185	132
20	22	43	100	134	107
25	19	33	78	95	77
30	15	27	60	88	50
35	10	20	48	78	37
40	8	17	37	58	29
45	6	14	25	47	24
50	5	11	19	41	19
55	4	10	17	28	16
60	3	9	14	27	15

*C_t = Concentration of the dye at any time t

Table B2: Kinetic study of photodegradation of the dye (DB-199) for System 2

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	39	92	178	256	197
10	36	78	152	229	165
15	28	62	120	188	132
20	21	48	102	158	107
25	17	38	79	123	71
30	13	31	60	102	53
35	10	19	49	77	39
40	8	19	36	57	32
45	5	13	28	38	28
50	4	10	19	29	22
55	3	8	14	22	19
60	2	7	12	19	18

Table B3: Kinetic study of photodegradation of the dye (DB-199) for System 3

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	39	79	171	255	197
10	37	65	153	240	157
15	25	37	113	189	127
20	22	28	89	155	95
25	16	24	71	131	62
30	12	21	52	94	44
35	9	18	37	52	37
40	7	15	31	40	29
45	5	11	19	28	25
50	4	9	13	21	19
55	3	6	11	16	15
60	2	5	10	14	12

Table B4: Kinetic study of photodegradation of the dye (DB-199) for System 4

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	40	92	159	285	197
10	35	69	147	249	157
15	26	54	104	208	127
20	21	45	63	155	95
25	15	30	55	108	62
30	11	28	49	74	44
35	7	19	30	53	37
40	4	12	19	39	29
45	3	8	13	26	25
50	2	5	11	19	14
55	2	4	9	12	11
60	2	3	8	9	10

Table B5: Kinetic study of photodegradation of the dye (DB-199) for System 5

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	44	77	179	247	192
10	37	63	153	209	157
15	26	48	122	156	121
20	19	36	89	119	95
25	16	27	57	91	62
30	12	19	39	64	44
35	8	14	24	40	31
40	4	9	18	29	18
45	3	7	10	19	10
50	2	4	6	10	7
55	1	2	4	6	5
60	1	1	3	4	4

Table B6: Kinetic study of photodegradation of the dye (DB-199) for System 6

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	36	85	160	256	174
10	28	68	129	220	142
15	22	47	95	186	109
20	19	33	81	153	87
25	13	28	49	113	68
30	10	24	40	95	47
35	9	18	29	69	37
40	7	13	21	31	26
45	5	10	18	26	20
50	4	6	16	21	16
55	3	5	13	15	14
60	2	4	10	12	12

Table B7: Kinetic study of photodegradation of the dye (DB-199) for System 7

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	41	90	168	283	200
10	34	79	155	254	159
15	27	61	110	211	135
20	22	50	79	159	112
25	15	36	62	111	93
30	12	27	55	76	74
35	10	18	36	55	42
40	7	15	27	43	27
45	5	11	21	28	20
50	4	8	15	24	17
55	3	6	14	20	15
60	2	6	12	19	13

Table B8: Kinetic study of photodegradation of the dye (DB-199) for System 8

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	41	83	159	248	210
10	35	70	152	217	182
15	31	59	131	166	149
20	24	36	92	130	119
25	19	30	59	96	93
30	15	24	46	75	76
35	12	16	37	54	39
40	9	14	27	39	31
45	6	11	23	35	24
50	5	10	18	31	21
55	3	9	17	29	19
60	3	8	16	29	19

Table B9: Kinetic study of photodegradation of the dye (DB-199) for System 9

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	39	91	182	258	196
10	34	80	153	231	162
15	32	65	121	190	134
20	27	47	103	172	108
25	22	35	85	134	88
30	18	29	68	119	74
35	15	21	52	82	60
40	13	19	37	68	45
45	10	16	30	45	36
50	6	13	24	35	29
55	5	12	20	27	24
60	4	12	20	27	22

Table B10: Kinetic study of photodegradation of the dye (DB-199) for System 10

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	42	94	183	264	204
10	39	80	165	237	170
15	33	67	141	196	149
20	26	54	121	178	124
25	24	41	104	149	104
30	21	34	77	132	95
35	19	30	56	93	72
40	15	27	48	80	62
45	12	24	44	70	52
50	10	22	39	60	46
55	9	21	37	54	40
60	9	20	35	53	36

Table B11: Kinetic study of photodegradation of the dye (DB-199) for System 11

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	44	91	183	280	208
10	40	83	159	246	197
15	34	75	135	222	176
20	32	62	124	189	161
25	29	57	113	168	146
30	26	50	102	155	129
35	23	44	87	147	112
40	22	42	84	129	98
45	21	38	77	111	87
50	19	36	72	101	81
55	18	35	69	99	75
60	18	34	67	98	72

Table B12: Kinetic study of photodegradation of the dye (DB-199) for System 12

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	39	87	159	256	186
10	33	65	134	216	162
15	23	49	100	176	127
20	18	36	74	132	101
25	15	30	57	98	68
30	12	23	46	62	50
35	9	18	37	46	39
40	6	13	27	42	29
45	5	10	20	30	25
50	3	6	13	19	19
55	2	5	9	16	12
60	2	4	7	13	11

Table B13: Kinetic study of photodegradation of the dye (DB-199) for System 13

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	40	88	159	247	174
10	32	75	134	211	142
15	24	51	99	148	109
20	16	39	59	120	86
25	13	26	54	87	56
30	8	20	42	58	39
35	6	14	26	30	25
40	5	8	16	28	17
45	3	5	12	19	13
50	2	4	8	14	9
55	1	3	6	9	7
60	1	2	4	6	6

Table B14: Kinetic study of photodegradation of the dye (DB-199) for System 14

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	41	85	177	250	177
10	36	67	149	213	151
15	26	53	121	167	118
20	19	37	87	124	92
25	15	27	64	89	59
30	9	19	44	55	42
35	5	13	26	34	31
40	3	9	19	26	24
45	2	5	10	17	13
50	2	4	5	9	7
55	1	2	4	5	5
60	1	2	3	5	4

Table B15: Kinetic study of photodegradation of the dye (DB-199) for System 15

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	40	75	159	241	171
10	29	57	134	180	157
15	19	41	98	140	121
20	15	31	59	89	89
25	9	20	45	68	65
30	5	12	30	38	33
35	4	10	21	27	25
40	3	7	11	19	15
45	2	4	8	14	7
50	1	2	4	7	5
55	1	1	3	4	4
60	1	1	2	3	2

Table B16: Kinetic study of photodegradation of the dye (DB-199) for System 16

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	39	72	167	247	171
10	28	49	122	183	136
15	16	33	81	111	100
20	11	24	55	83	77
25	7	15	31	52	50
30	3	9	19	36	27
35	2	6	13	21	19
40	2	4	6	12	7
45	1	3	4	9	5
50	1	2	3	4	3
55	1	1	2	3	2
60	0	1	2	2	2

Table B17: Kinetic study of photodegradation of the dye (DB-199) for System 17

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	38	88	157	273	186
10	33	66	144	237	144
15	22	51	101	203	102
20	18	29	62	149	74
25	14	25	54	109	53
30	9	20	31	55	35
35	5	15	26	29	23
40	4	9	17	20	17
45	2	6	11	13	12
50	2	4	8	10	9
55	2	3	5	9	7
60	1	2	5	8	6

Table B18: Kinetic study of photodegradation of the dye (DB-199) for System 18

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	42	77	172	246	199
10	37	62	148	216	152
15	24	53	119	165	113
20	18	35	90	128	85
25	15	30	58	95	61
30	11	23	42	73	47
35	6	15	24	40	34
40	5	9	20	28	22
45	3	6	12	19	17
50	2	4	8	12	10
55	2	4	7	11	7
60	2	4	7	10	7

Table B19: Kinetic study of photodegradation of the dye (DB-199) for System 19

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	42	77	182	252	197
10	33	65	154	215	166
15	22	47	120	182	132
20	20	37	94	130	106
25	17	28	65	106	77
30	12	26	47	66	62
35	9	18	37	50	44
40	7	14	27	39	28
45	5	9	16	25	20
50	3	6	12	18	13
55	2	5	9	15	10
60	2	4	8	12	9

Table B20: Kinetic study of photodegradation of the dye (DB-199) for System 20

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	39	82	182	256	195
10	31	70	154	225	155
15	23	51	127	190	134
20	17	44	98	166	107
25	15	32	68	139	83
30	12	30	52	99	67
35	11	23	39	80	56
40	9	19	30	44	39
45	8	16	24	29	27
50	5	9	18	23	20
55	4	7	13	21	15
60	3	7	12	20	14

Table B21: Kinetic study of photodegradation of the dye (DB-199) for System 21

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	41	91	183	249	200
10	31	77	159	215	168
15	28	63	135	183	135
20	24	53	115	152	110
25	19	42	102	125	77
30	16	33	85	95	56
35	14	27	60	81	45
40	9	21	43	62	38
45	7	18	33	47	34
50	6	11	22	40	28
55	5	8	13	28	25
60	4	7	12	27	24

Table B22: Kinetic study of photodegradation of the dye (DB-199) for System 22

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	49	97	179	258	213
10	45	90	158	230	195
15	39	79	133	206	179
20	36	69	119	188	157
25	34	56	106	167	140
30	31	49	100	148	126
35	28	44	94	136	108
40	24	40	87	123	95
45	18	38	76	110	76
50	16	35	68	102	69
55	14	32	64	94	63
60	13	32	63	93	62

Table B23: Kinetic study of photodegradation of the dye (DB-199) for System 23

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	48	97	189	286	212
20	45	93	182	265	201
30	42	84	165	248	189
40	38	76	147	219	171
50	35	69	137	201	138
60	29	59	121	181	113
70	23	41	89	140	87
80	19	39	78	115	82
90	16	38	77	109	80
100	16	38	76	109	80
110	16	37	76	109	80
120	16	37	76	109	80
150	16	37	76	108	79
180	15	37	75	108	79

Table B24: Kinetic study of photodegradation of the dye (DB-199) for System 24

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	48	97	190	289	212
20	43	91	184	273	201
30	39	83	163	253	186
40	36	79	146	229	171
50	31	70	131	202	135
60	27	60	102	159	110
70	20	44	79	137	90
80	16	37	58	115	88
90	15	35	57	113	86
100	15	34	56	112	86
110	15	35	56	112	86
120	14	34	56	112	85
150	14	34	55	112	85
180	14	34	55	112	85

Table B25: Kinetic study of photodegradation of the dye (DB-199) for System 25

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	44	89	183	262	191
20	39	75	166	241	166
30	35	68	143	201	146
40	30	57	115	171	119
50	24	49	94	140	103
60	20	42	87	122	88
70	17	37	69	106	78
80	16	31	57	90	65
90	15	28	56	89	63
100	15	27	56	89	62
110	15	27	55	89	62
120	15	27	55	89	62
150	14	26	55	88	62
180	14	26	54	88	61

Table B26: Kinetic study of photodegradation of the dye (DB-199) for System 26

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	45	93	172	273	195
20	42	80	148	232	169
30	34	69	118	188	144
40	31	53	100	164	125
50	27	46	90	142	106
60	22	35	74	113	87
70	16	33	60	90	72
80	13	29	58	84	66
90	12	26	56	82	65
100	12	26	56	82	65
110	11	26	56	82	65
120	11	26	56	82	65
150	11	26	56	82	65
180	11	26	56	82	64

Table B27: Kinetic study of photodegradation of the dye (DB-199) for System 27

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	37	96	190	292	212
20	32	88	177	267	207
30	27	80	160	239	191
40	24	73	149	223	177
50	21	61	116	195	162
60	20	43	80	167	128
70	17	37	71	130	98
80	12	33	68	127	88
90	11	29	67	125	85
100	11	28	67	125	84
110	11	28	67	124	84
120	11	28	67	124	84
150	11	28	66	124	83
180	11	28	66	123	83

Table B28: Kinetic study of photodegradation of the dye (DB-199) for System 28

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	47	97	191	292	213
20	42	93	183	276	205
30	39	82	166	253	187
40	32	72	148	173	169
50	21	55	134	152	146
60	18	40	97	130	116
70	15	33	73	127	98
80	14	27	70	123	88
90	13	24	69	120	85
100	12	24	68	120	84
110	11	24	67	119	83
120	11	23	67	119	83
150	11	23	66	118	82
180	11	22	66	117	82

Table B29: Kinetic study of photodegradation of the dye (DB-199) for System 29

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	42	96	194	289	214
20	38	90	180	267	192
30	35	85	166	242	164
40	32	78	124	183	156
50	29	70	115	166	141
60	25	62	100	152	99
70	22	43	89	144	89
80	20	40	89	206	85
90	19	37	88	189	83
100	19	37	88	188	83
110	19	36	88	188	83
120	19	36	88	187	82
150	19	36	88	187	82
180	19	35	87	186	82

Table B30: Kinetic study of photodegradation of the dye (DB-199) for System 30

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	48	97	193	291	220
20	45	90	184	255	199
30	40	83	165	237	189
40	39	77	150	208	168
50	34	52	130	186	153
60	29	46	92	165	123
70	26	43	87	145	115
80	21	39	79	141	106
90	19	40	76	139	105
100	18	39	76	138	104
110	18	39	75	137	104
120	17	39	75	137	103
150	17	39	75	137	103
180	17	39	75	136	102

Table B31: Kinetic study of photodegradation of the dye (DB-199) for System 31

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	45	95	176	270	210
20	42	90	162	251	199
30	39	84	142	233	177
40	35	69	130	205	156
50	32	58	117	193	132
60	28	52	107	167	119
70	25	46	101	148	107
80	22	46	94	136	101
90	22	44	92	134	100
100	21	42	92	134	100
110	21	42	92	134	99
120	21	42	92	134	99
150	21	42	92	133	99
180	21	42	92	133	99

Table B32: Kinetic study of photodegradation of the dye (DB-199) for System 32

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	48	95	188	279	206
20	45	86	174	260	191
30	40	78	156	229	181
40	39	74	142	216	171
50	35	68	133	208	158
60	33	63	124	187	143
70	30	59	115	167	129
80	27	53	109	163	115
90	25	50	107	162	114
100	24	49	107	162	114
110	23	49	106	162	114
120	23	49	106	162	114
150	23	49	106	162	114
180	23	49	106	162	114

Table B33: Kinetic study of photodegradation of the dye (DB-199) for System 33

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	48	94	189	288	210
20	46	86	177	274	198
30	43	77	158	247	184
40	39	72	140	220	170
50	37	65	131	209	160
60	34	61	126	186	144
70	32	58	121	172	128
80	28	57	117	168	119
90	26	56	116	167	118
100	25	55	116	167	118
110	25	55	116	167	118
120	25	55	116	167	117
150	25	55	116	167	116
180	25	54	115	166	116

Table B34: Kinetic study of photodegradation of the dye (DB-199) for System 34

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	38	88	177	254	177
10	35	71	144	216	148
15	27	55	105	167	118
20	20	44	88	137	89
25	16	30	66	105	56
30	12	25	54	78	42
35	9	19	39	62	34
40	6	12	24	42	25
45	4	9	16	27	21
50	3	6	11	15	16
55	2	4	9	11	12
60	2	4	8	10	11

Table B35: Kinetic study of photodegradation of the dye (DB-199) for System 35

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	41	79	162	242	180
10	32	65	136	200	133
15	23	49	101	152	100
20	20	34	78	122	75
25	15	27	59	86	52
30	10	20	43	67	37
35	7	15	31	37	30
40	5	10	21	28	21
45	4	7	13	19	17
50	2	5	8	13	10
55	2	3	6	10	7
60	1	2	5	9	6

Table B36: Kinetic study of photodegradation of the dye (DB-199) for System 36

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	38	91	154	253	182
10	30	68	127	192	144
15	22	53	95	157	116
20	15	39	63	115	82
25	11	27	49	81	57
30	7	22	35	59	41
35	5	15	25	41	25
40	3	9	14	27	20
45	2	5	9	16	12
50	2	3	7	8	7
55	1	2	4	5	4
60	1	1	3	4	4

Table B37: Kinetic study of photodegradation of the dye (DB-199) for System 37

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	42	76	178	243	190
10	32	62	152	197	154
15	23	47	118	152	119
20	16	35	82	103	93
25	12	26	52	77	61
30	9	17	32	55	40
35	6	13	23	35	28
40	5	8	17	28	16
45	3	6	10	19	12
50	2	4	8	12	9
55	2	4	7	9	7
60	1	3	5	8	6

Table B38: Kinetic study of photodegradation of the dye (DB-199) for System 38

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	36	84	158	247	162
10	26	67	127	214	133
15	21	46	94	174	100
20	18	32	78	141	82
25	12	27	47	104	62
30	9	23	38	67	44
35	8	17	27	47	30
40	6	12	20	28	21
45	4	8	17	23	17
50	3	5	11	16	12
55	2	4	8	14	10
60	2	3	7	12	9

Table B39: Kinetic study of photodegradation of the dye (DB-199) for System 39

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	39	88	166	277	194
10	33	79	154	248	153
15	27	60	109	202	129
20	21	49	77	153	106
25	15	35	60	102	87
30	12	26	54	74	62
35	9	17	35	53	39
40	7	14	26	41	25
45	4	9	20	26	19
50	3	7	14	19	14
55	2	5	11	16	12
60	2	4	10	15	10

Table B40: Kinetic study of photodegradation of the dye (DB-199) for System 40

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	39	82	156	247	195
10	33	70	149	216	176
15	28	57	125	165	137
20	24	35	89	128	110
25	18	28	57	94	87
30	15	23	44	74	70
35	11	17	35	52	39
40	7	14	26	44	31
45	5	10	22	34	23
50	4	9	17	29	20
55	3	8	15	24	16
60	3	8	14	23	15

Table B41: Kinetic study of photodegradation of the dye (DB-199) for System 41

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	39	89	177	255	193
10	32	79	151	229	159
15	30	63	118	188	132
20	25	45	100	170	106
25	20	32	84	133	86
30	17	27	66	114	72
35	14	22	51	80	57
40	11	18	35	65	41
45	7	15	29	44	34
50	5	12	22	37	28
55	4	10	18	27	23
60	4	10	17	25	22

Table B42: Kinetic study of photodegradation of the dye (DB-199) for System 42

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	45	92	180	262	198
10	37	78	159	236	170
15	30	69	135	195	146
20	25	51	112	174	127
25	24	42	98	148	101
30	21	35	77	130	95
35	18	29	58	92	69
40	14	27	51	79	60
45	12	23	43	69	50
50	9	19	36	57	42
55	7	15	34	51	37
60	6	14	32	49	35

Table B43: Kinetic study of photodegradation of the dye (DB-199) for System 43

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	42	90	180	278	209
10	39	82	156	244	188
15	33	73	132	221	168
20	30	61	118	187	155
25	27	56	107	165	142
30	25	49	97	153	129
35	21	44	88	145	114
40	19	41	79	127	92
45	17	35	71	109	74
50	16	30	62	98	67
55	15	26	59	93	63
60	14	25	58	89	62

Table B44: Kinetic study of photodegradation of the dye (DB-199) for System 44

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	40	81	159	247	173
10	29	63	134	192	140
15	22	42	99	135	107
20	16	30	59	96	77
25	11	22	49	75	54
30	8	18	39	55	37
35	6	12	26	36	25
40	4	8	16	26	17
45	3	5	12	18	13
50	2	4	7	12	8
55	1	3	5	7	6
60	1	2	3	5	5

Table B45: Kinetic study of photodegradation of the dye (DB-199) for System 45

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	39	85	167	247	175
10	31	61	134	208	147
15	22	44	109	161	116
20	15	31	75	118	81
25	10	21	52	88	55
30	7	16	39	49	39
35	4	12	24	31	28
40	3	8	18	24	21
45	2	4	9	15	10
50	2	3	4	8	6
55	1	2	4	5	4
60	1	2	2	4	3

Table B46: Kinetic study of photodegradation of the dye (DB-199) for System 46

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	36	71	156	232	171
10	25	49	119	162	118
15	16	35	77	106	79
20	11	22	50	68	48
25	6	15	30	40	29
30	4	10	19	29	21
35	3	5	11	18	13
40	2	3	7	10	8
45	1	2	3	5	5
50	1	1	2	4	3
55	0	1	2	2	2
60	0	0	1	2	1

Table B47: Kinetic study of photodegradation of the dye (DB-199) for System 47

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	39	69	161	245	159
10	28	47	119	182	127
15	16	30	78	109	100
20	11	23	49	82	68
25	7	14	29	51	44
30	3	9	18	35	24
35	2	6	12	21	14
40	2	4	6	12	7
45	1	3	4	9	5
50	1	2	4	4	3
55	1	1	3	3	2
60	1	1	2	2	2

Table B48: Kinetic study of photodegradation of the dye (DB-199) for System 48

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	36	84	157	252	183
10	30	60	120	212	122
15	20	39	72	155	87
20	14	27	49	100	62
25	9	18	31	61	41
30	7	12	22	31	27
35	4	9	17	19	17
40	3	5	11	14	11
45	2	4	6	9	7
50	1	2	4	7	5
55	1	1	3	5	4
60	0	1	2	3	3

Table B49: Kinetic study of photodegradation of the dye (DB-199) for System 49

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	39	76	172	246	183
10	31	59	124	201	134
15	21	44	95	140	92
20	15	32	69	104	73
25	11	22	43	74	55
30	8	15	31	55	38
35	5	11	18	34	25
40	3	7	13	22	19
45	2	4	9	13	14
50	2	3	5	9	7
55	1	2	4	7	5
60	1	2	3	5	4

Table B50: Kinetic study of photodegradation of the dye (DB-199) for System 50

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	41	74	164	242	188
10	32	62	136	203	154
15	22	44	103	158	113
20	17	32	74	109	88
25	14	24	53	80	62
30	9	17	37	55	44
35	6	12	25	41	32
40	4	9	15	30	19
45	3	6	10	19	12
50	2	4	7	12	9
55	1	3	5	9	6
60	1	2	4	7	5

Table B51: Kinetic study of photodegradation of the dye (DB-199) for System 51

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	38	82	168	256	185
10	30	61	143	195	155
15	22	50	113	160	122
20	19	41	89	136	98
25	15	34	65	103	77
30	12	24	46	72	61
35	9	18	36	56	47
40	7	13	28	32	33
45	5	10	21	24	21
50	3	7	15	19	14
55	2	4	10	15	11
60	2	4	8	14	11

Table B52: Kinetic study of photodegradation of the dye (DB-199) for System 52

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	42	90	183	246	198
10	32	76	150	212	167
15	27	62	126	174	133
20	23	51	89	140	108
25	18	39	72	116	76
30	14	30	61	85	55
35	11	24	49	69	44
40	9	18	32	56	38
45	7	12	24	41	30
50	5	8	18	31	25
55	4	7	15	24	22
60	3	6	14	22	21

Table B53: Kinetic study of photodegradation of the dye (DB-199) for System 53

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
5	44	89	176	262	207
10	39	75	156	234	180
15	33	65	127	204	159
20	29	54	117	174	139
25	24	44	99	150	119
30	19	39	88	126	98
35	16	32	74	100	83
40	12	27	59	86	62
45	9	17	46	70	51
50	6	14	36	59	45
55	5	12	30	53	40
60	5	11	28	50	37

Table B54: Kinetic study of photodegradation of the dye (DB-199) for System 54

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	45	93	184	285	209
20	41	83	172	255	195
30	35	75	154	225	170
40	31	66	137	204	142
50	26	55	122	164	118
60	22	47	100	129	96
70	19	38	72	107	87
80	16	32	62	102	79
90	15	30	58	100	78
100	15	29	58	100	78
110	15	29	58	100	78
120	14	29	58	100	78
150	14	29	57	99	77
180	14	28	57	99	77

Table B55: Kinetic study of photodegradation of the dye (DB-199) for System 55

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	44	90	182	259	220
20	39	74	165	239	190
30	35	69	141	196	164
40	30	58	113	173	145
50	24	49	93	137	118
60	20	43	86	120	105
70	17	35	68	107	87
80	16	29	56	95	76
90	15	24	54	93	66
100	15	24	54	93	63
110	15	24	55	93	62
120	14	24	54	93	62
150	14	23	54	92	62
180	14	23	54	92	62

Table B56: Kinetic study of photodegradation of the dye (DB-199) for System 56

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	44	91	172	269	189
20	40	79	148	229	166
30	33	68	127	183	142
40	29	51	101	159	122
50	24	43	78	121	94
60	19	33	64	95	77
70	14	28	54	81	59
80	12	24	49	72	50
90	9	22	47	67	49
100	9	21	47	67	49
110	9	21	47	67	49
120	9	21	47	66	49
150	8	21	47	67	48
180	7	21	46	66	48

Table B57: Kinetic study of photodegradation of the dye (DB-199) for System 57

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	42	92	184	280	205
20	35	84	159	234	182
30	29	70	135	199	152
40	25	58	101	159	127
50	21	47	87	135	98
60	19	36	72	108	77
70	16	27	59	87	65
80	14	24	52	75	57
90	12	21	49	74	54
100	12	21	49	74	54
110	12	20	49	74	54
120	12	20	49	73	53
150	12	20	49	73	53
180	11	20	48	73	53

Table B58: Kinetic study of photodegradation of the dye (DB-199) for System 58

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	45	94	184	285	204
20	39	83	160	256	181
30	34	70	139	211	158
40	31	59	121	173	132
50	24	49	98	155	114
60	22	40	84	137	98
70	18	35	74	109	80
80	17	30	67	93	71
90	15	28	58	89	67
100	13	27	56	89	67
110	12	27	56	89	67
120	12	27	57	89	67
150	12	27	56	89	66
180	12	26	56	88	66

Table B59: Kinetic study of photodegradation of the dye (DB-199) for System 59

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	44	95	188	279	208
20	39	88	177	261	185
30	35	76	154	229	172
40	30	70	121	187	152
50	28	60	114	162	128
60	24	53	99	148	111
70	21	41	86	132	95
80	20	37	77	119	83
90	19	33	74	117	82
100	18	31	74	117	82
110	18	31	74	117	82
120	18	31	74	117	82
150	18	31	74	117	82
180	18	31	73	116	82

Table B60: Kinetic study of photodegradation of the dye (DB-199) for System 60

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	47	94	193	291	220
20	43	87	184	255	199
30	40	75	165	237	189
40	36	69	150	208	168
50	33	59	130	186	153
60	29	54	92	165	123
70	25	46	87	145	115
80	21	41	79	134	106
90	19	39	76	139	105
100	19	38	76	138	105
110	19	38	76	137	105
120	19	38	75	136	105
150	19	38	75	137	105
180	19	38	75	137	105

Table B61: Kinetic study of photodegradation of the dye (DB-199) for System 61

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	44	94	175	269	209
20	41	88	162	250	198
30	38	80	141	232	176
40	35	68	129	203	156
50	32	59	116	183	133
60	27	52	107	166	119
70	24	47	100	147	106
80	22	45	94	135	100
90	21	42	92	133	99
100	21	42	92	133	99
110	21	42	92	133	99
120	21	42	91	133	99
150	21	42	91	133	99
180	21	41	91	132	99

Table B62: Kinetic study of photodegradation of the dye (DB-199) for System 62

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	47	92	187	279	208
20	43	86	172	260	195
30	39	78	155	229	174
40	36	72	141	216	155
50	34	65	132	192	143
60	32	60	116	177	132
70	29	54	106	164	120
80	26	50	102	154	112
90	24	48	101	153	110
100	22	47	101	153	110
110	23	47	101	153	110
120	24	47	101	152	110
150	24	47	100	152	110
180	23	46	100	152	110

Table B63: Kinetic study of photodegradation of the dye (DB-199) for System 63

Time (min)	C_t in simulated solution (ppm)				C_t in industrial wastewater (ppm)
0	50	100	200	300	221
10	48	93	185	288	209
20	45	87	169	255	196
30	42	78	156	239	182
40	39	73	144	213	165
50	35	67	133	198	153
60	32	62	119	181	137
70	28	57	113	172	127
80	26	52	110	163	119
90	25	51	109	162	118
100	24	49	109	162	118
110	25	49	109	162	118
120	25	49	108	162	118
150	25	48	108	162	118
180	25	48	108	162	117