

## Supplementary Material

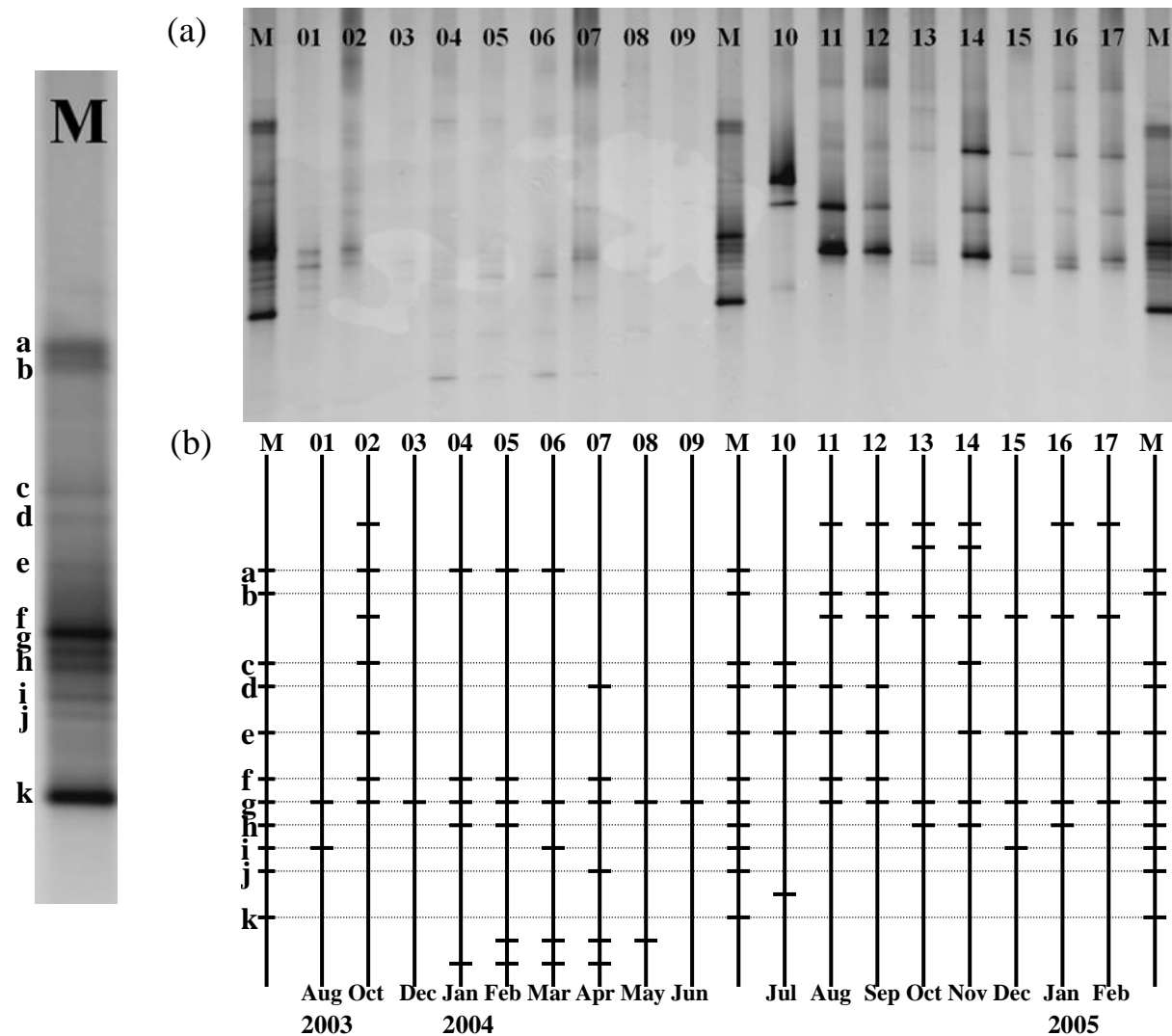
Supplementary Fig. S1. ITS DGGE profile of water samples collected from MTR, where (a) is original film, (b) is sketch map, M is marker, and a-k represent the biomarkers shown in Table 3.

Supplementary Fig. S1. (continue) ITS DGGE profile of water samples collected from MTR, where (c) and (d) are original film, (e) and (f) are sketch map, M is marker, and a-k represent the biomarkers shown in Table 3.

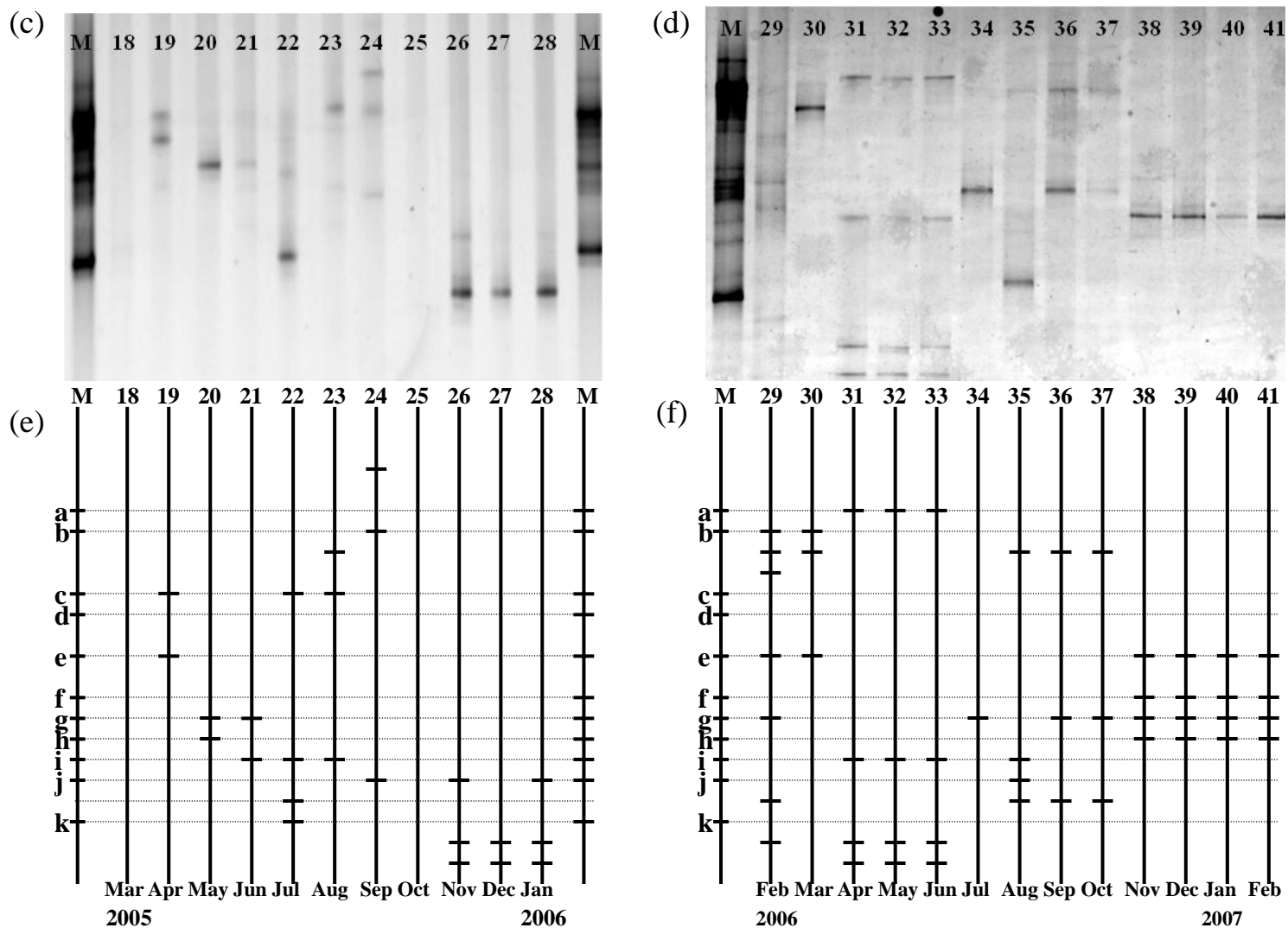
Supplementary Table S1. m/z ions monitored for the cyanotoxins and internal standards in this study.

Supplementary Table S2. The raw data (12/08/2003 ~ 09/03/2005) of Figure 2 and Table 6 in this study.

Supplementary Table S3. The raw data (19/04/2005~24/05/2006) of Figure 2 and Table 6 in this study.



Supplementary Fig. S1. ITS DGGE profile of water samples collected from MTR, where (a) is original film, (b) is sketch map, M is marker, and a-k represent the biomarkers shown in Table 3.



Supplementary Fig. S1. (continue) ITS DGGE profile of water samples collected from MTR, where (c) and (d) are original film, (e) and (f) are sketch map, M is marker, and a-k represent the biomarkers shown in Table 3.

Supplementary Table S1. m/z ions monitored for the cyanotoxins and internal standards in this study.

Compounds	Ions (m/z)		Retention Time
	Main ion		
	[M+H] <sup>+</sup>	[M+2H] <sup>2+</sup>	
CYN	416.1	-	2.95
ATX	166.1	-	7.26
MC-LR	995.7	-	32.37
MC-RR	-	520.1	30.26
MC-YR	1045.6	-	31.78
MC-LW	1026.4	-	38.22
MC-LF	986.2	-	38.79
MC-LA	910.6	-	35.51
NOD	825.5	-	30.98
1,9-D	159.1	-	17.41
2,3,5-TMC	194.1	-	32.43

Supplementary Table S2. The raw data (12/08/2003 ~ 09/03/2005) of Figure 2 and Table 6 in this study.

Date (dd/mm/yy)	LR (ng/L)	RR (ng/L)	YR (ng/L)	MCs (ng/L)	Chl-a (mg/m <sup>3</sup> )	mcyB (copies/mL)	Cell number ( <i>M. spp.</i> , cells/mL)	cpcB (copies/mL)	WT (°C)	pH	Conductivity (µmho/cm)	Turbidity (NTU)	Visibility (m)	SS (mg/L)	Hardness (mg/LCaCO <sub>3</sub> )
12/08/2003	15	9	44	68	4	2239	92000	4786	31.5	8.6	202	6.7	1.54	5.3	102
21/10/2003	5	11	0	16	4	550	1023	128	26.6	8.0	253	2.2	2.70	0.5	102
11/12/2003	9	9	0	18	9	295	161	71	22.7	7.6	242	9.3	1.20	5.0	91
05/01/2004	1	0	0	1	12	174	102	120	21.7	8.3	226	2.9	2.10	3.9	90
10/02/2004	3	11	0	14	4	87	890	76	19.5	8.0	232	2.9	3.67	1.1	108
16/03/2004	12	9	51	72	6	1479	69	603	23.6	8.1	241	2.2	3.00	1.4	98
13/04/2004	416	12	38	466	5	1410	115000	17378	26.3	8.7	251	2.4	2.50	3.7	108
04/05/2004	142	16	64	222	6	2801	48300	8709	29.2	8.5	277	2.7	2.30	5.0	117
08/06/2004	4	42	22	68	11	1022	1026	91	29.4	8.3	225	42.9	0.30	29.0	74
20/07/2004	9	35	17	61	13	1230	1150	776	28.5	8.5	255	4.1	1.10	5.5	89
10/08/2004	7	137	16	161	14	3801	27600	4786	31.2	8.7	283	3.0	1.63	9.2	83
14/09/2004	6	91	10	107	6	3162	621256	12023	28.6	8.0	293	6.4	1.26	6.1	102
11/10/2004	5	37	8	50	4	1322	2300	173	26.2	8.3	251	1.7	2.86	3.4	107
10/11/2004	3	22	5	30	5	501	920	120	25.8	8.0	300	1.0	4.00	1.4	112
07/12/2004	4	18	9	31	2	263	690	115	23.3	7.9	261	26.0	0.50	17.0	107
18/01/2005	9	41	7	58	2	1475	1002	78	20.4	8.0	262	1.5	3.40	2.9	111
23/02/2005	6	19	0	25	4	446	552	109	22.1	8.5	267	1.6	2.25	2.9	112
09/03/2005	6	19	17	42	3	295	1430	71	21.4	8.2	266	1.3	2.36	2.1	118

Supplementary Table S2. (continued) The raw data (12/08/2003 ~ 09/03/2005) of Figure 2 and Table 6 in this study.

Date (dd/mm/yy)	DO (mg/L)	BOD (mg/L)	COD (mg/L)	NO <sub>3</sub> <sup>-</sup> -N (mg/L)	NO <sub>2</sub> <sup>-</sup> -N (mg/L)	NH <sub>3</sub> -N (mg/L)	TP (mg/L)	Cl <sup>-</sup> (mg/L)	SO <sub>4</sub> <sup>2-</sup> (mg/L)	Fe <sup>2+</sup> (mg/L)	Mn <sup>2+</sup> (mg/L)	TN (mg/L)	CTSI	Rainfall (mm)
12/08/2003	8.3	0.5	3.5	0.28	0.003	0.06	0.020	7.7	11.8	0.05	0.0070	0.34	48.5	468
21/10/2003	7.0	1.1	5.0	0.27	0.003	0.02	0.020	10.4	12.3	0.02	0.0070	0.30	45.6	73
11/12/2003	7.6	1.4	3.0	0.45	0.003	0.02	0.020	10.1	7.2	0.05	0.0070	0.48	52.2	3
05/01/2004	8.7	1.2	2.9	0.48	0.005	0.28	0.010	9.9	8.8	0.05	0.0095	0.77	47.2	7
10/02/2004	8.0	0.5	1.7	0.54	0.005	0.04	0.040	9.6	11.8	0.02	0.0095	0.59	47.6	8
16/03/2004	8.6	1.1	7.2	0.23	0.005	0.03	0.005	9.6	13.1	0.02	0.0095	0.26	39.9	5
13/04/2004	7.7	0.5	9.2	0.05	0.005	0.08	0.002	10.0	11.8	0.02	0.0095	0.14	35.9	5
04/05/2004	7.8	0.5	6.9	0.01	0.005	0.01	0.006	9.9	12.8	0.01	0.0100	0.03	42.0	4
08/06/2004	8.9	0.5	2.4	0.58	0.005	0.01	0.050	10.8	11.3	0.15	0.0100	0.60	64.1	603
20/07/2004	8.6	0.5	7.2	0.16	0.005	0.01	0.003	9.9	15.5	0.03	0.0100	0.18	44.8	253
10/08/2004	9.9	1.5	7.1	0.01	0.005	0.01	0.015	9.6	12.7	0.01	0.0030	0.03	50.9	185
14/09/2004	7.7	1.4	2.4	0.29	0.005	0.03	0.011	9.2	13.4	0.09	0.0100	0.32	48.0	475
11/10/2004	7.4	1.4	5.5	0.40	0.001	0.03	0.011	9.6	13.0	0.03	0.0028	0.43	42.8	345
10/11/2004	7.8	1.0	2.7	0.34	0.010	0.04	0.008	8.6	14.0	0.02	0.0095	0.39	40.2	2
07/12/2004	7.7	0.4	5.2	0.48	0.005	0.02	0.013	9.8	12.0	0.05	0.0095	0.51	49.7	242
18/01/2005	8.5	0.5	4.9	0.49	0.005	0.01	0.005	9.2	12.9	0.05	0.0070	0.51	36.0	5
23/02/2005	8.6	0.5	1.6	0.15	0.005	0.02	0.005	9.2	13.6	0.05	0.0070	0.18	39.7	10
09/03/2005	7.7	0.3	3.9	0.21	0.002	0.03	0.005	10.0	15.4	0.02	0.0070	0.24	39.1	12

Supplementary Table S3. The raw data (19/04/2005~24/05/2006) of Figure 2 and Table 6 in this study.

Date	LR	RR	YR	MCs	Chl-a	mcyB	Cell number	cpcB	WT	pH	Conductivity	Turbidity	Visibility	SS	Hardness
(dd/mm/yy)	(ng/L)	(ng/L)	(ng/L)	(ng/L)	(mg/m <sup>3</sup> )	(copies/mL)	( <i>M. spp.</i> , cells/mL)	(copies/mL)	(°C)		(µmho/cm)	(NTU)	(m)	(mg/L)	(mg/LCaCO <sub>3</sub> )
19/04/2005	23	34	37	93	6	1820	1610	245	26.9	8.7	298	1.9	2.10	2.9	117
19/05/2005	2	3	9	14	3	489	158029	7762	30.4	8.6	290	2.6	1.89	2.7	120
22/06/2005	3	11	8	22	4	813	3410	1660	28.1	8.2	254	20.0	0.39	10.0	97
12/07/2005	2	4	20	26	8	1659	35001	3548	31.1	9.0	232	2.2	2.35	3.7	84
11/08/2005	2	8	0	10	11	426	5173	933	28.7	8.6	240	5.1	1.11	4.9	100
13/09/2005	1	23	16	41	5	489	52635	117	29.5	8.7	268	2.0	1.97	2.5	98
12/10/2005	0	8	0	8	5	1129	2723	186	27.5	8.2	242	5.3	1.30	242.0	94
07/11/2005	0	4	0	4	2	2890	4080	209	27.3	8.2	273	1.4	2.35	2.5	110
06/12/2005	2	3	3	8	3	166	2178	76	22.3	7.9	255	2.4	2.50	2.4	113
24/01/2006	3	4	0	6	4	214	950	91	20.8	8.3	255	2.7	3.30	1.8	117
16/02/2006	0	3	0	3	5	1096	1452	74	23.1	8.1	275	0.8	3.03	1.0	119
14/03/2006	49	12	13	74	4	1230	4138	158	22.0	8.3	267	2.0	1.73	4.0	136
20/04/2006	14	23	14	50	5	316	2308	275	25.3	8.4	291	3.2	1.22	3.0	123
24/05/2006	13	17	7	37	11	1760	42350	2398	29.0	8.6	309	7.2	0.93	6.5	116

Supplementary Table S3. (continued) The raw data (19/04/2005~24/05/2006) of Figure 2 and Table 6 in this study.

Date (dd/mm/yy)	DO (mg/L)	BOD (mg/L)	COD (mg/L)	NO <sub>3</sub> <sup>-</sup> -N (mg/L)	NO <sub>2</sub> <sup>-</sup> -N (mg/L)	NH <sub>3</sub> -N (mg/L)	TP (mg/L)	Cl <sup>-</sup> (mg/L)	SO <sub>4</sub> <sup>2-</sup> (mg/L)	Fe <sup>2+</sup> (mg/L)	Mn <sup>2+</sup> (mg/L)	TN (mg/L)	CTSI	Rainfall (mm)
19/04/2005	8.6	0.6	5.3	0.02	0.002	0.01	0.015	10.2	12.3	0.05	0.0250	0.03	46.8	8
19/05/2005	8.6	0.9	1.6	0.02	0.002	0.01	0.017	9.9	13.2	0.02	0.0070	0.03	45.5	95
22/06/2005	7.8	0.8	4.8	0.51	0.005	0.01	0.016	9.1	12.6	0.18	0.0070	0.52	54.1	603
12/07/2005	10.1	3.2	13.2	0.02	0.005	0.08	0.013	10.3	12.1	0.02	0.0070	0.11	46.4	206
11/08/2005	8.3	1.8	8.4	0.11	0.005	0.03	0.019	9.4	10.1	0.01	0.0025	0.15	53.1	895
13/09/2005	8.3	1.6	7.1	0.30	0.005	0.02	0.019	9.5	11.0	0.05	0.0025	0.33	47.6	72
12/10/2005	8.0	1.4	5.3	0.32	0.005	0.01	0.010	8.1	10.0	0.10	0.0025	0.33	46.3	500
07/11/2005	8.3	0.6	6.7	0.29	0.005	0.01	0.011	8.9	11.0	0.01	0.0121	0.31	40.3	3
06/12/2005	7.6	0.6	1.6	0.39	0.002	0.01	0.005	9.3	10.2	0.01	0.0025	0.40	38.2	104
24/01/2006	8.4	0.8	4.5	0.25	0.002	0.06	0.013	39.2	11.3	0.02	0.0100	0.31	42.4	22
16/02/2006	8.3	0.5	1.4	0.24	0.002	0.08	0.008	9.9	12.2	0.01	0.0100	0.32	41.8	7
14/03/2006	8.5	0.5	1.4	0.24	0.005	0.08	0.016	10.4	12.7	0.01	0.0025	0.33	47.0	3
20/04/2006	7.6	0.5	1.4	0.01	0.001	0.01	0.014	10.9	13.4	0.11	0.0200	0.02	48.3	24
24/05/2006	8.8	1.3	9.2	0.10	0.004	0.01	0.018	11.4	12.8	0.19	0.0100	0.11	53.8	29