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Microalgal pigment ratios in relation to light intensity: implications for chemotaxonomy

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Table S1: Chlorophyll-*a* to biomarker pigment molar ratios

Genus (biomarker)	Light	Run 1	Run 2	Run 3	Run 4	Run 5	Mean	StDev
Closterium	L	2.59	2.9	3.32	3.13	3.51	3.09	0.360
(Chlb)	M	2.57	2.42	2.6	2.04	1.88	2.30	0.325
	H	2.87	3.13	2.61	2.5	2.28	2.68	0.330
	I	2.6	2.59	2.87	2.42	2.23	2.54	0.237
(lutein)	L	14.58	13.9	10.51	16.01	10.93	13.19	2.381
	M	6.36	7.17	3.93	1.77	2.72	4.39	2.317
	H	4.36	2.52	4.41	4.88	4.68	4.17	0.946
	I	4.22	5.98	3.19	2.98	2.29	3.73	1.434
(Zea)	L	0.00	0.00	0.00	0.00	0.00	0.00	0.000
	M	167.9	0.00	52.36	0.00	0.00	110.13	72.851
	H	26.06	39.02	16.55	27.24	21.43	26.06	8.385
	I	47.55	74.3	50.92	14.69	11.61	39.81	26.454

Cosmarium	L	3.24	2.76	3.11	3.47	3.61	3.24	0.331
(Chlb)	M	2.37	2.52	2.4	2.51	1.87	2.33	0.268
	H	2.96	2.79	2.19	2.67	2.69	2.66	0.287
	I	2.48	2.93	2.68	2.61	2.39	2.62	0.208
(lutein)	L	14.58	13.9	10.51	16.01	10.93	13.19	2.381
	M	5.98	6.38	3.57	2	5.66	4.72	1.867
	H	3.41	4.62	3.6	2.73	2.72	3.42	0.781
	I	4.62	2.88	6.34	5.16	4.17	4.63	1.273
(Zea)	L	0.00	0.00	0.00	0.00	0.00	0.00	0.000
	M	115.67	60.3	51.12	20.81	43.27	58.23	35.278
	H	33.88	73.23	34.63	12.38	17.43	34.31	23.879
	I	66.47	36.59	56.69	91.81	22.12	54.74	26.968
Anacystis	L	2.53	3.84	3.5	3.5	2.3	3.13	0.676
(Zea)	M	1.86	1.75	1.6	2.33		1.89	0.315
	H	1.33	1.08	1.06	1.19	1.08	1.15	0.114
	I	1.06	0.95	1.18	1.1	0.76	1.01	0.162
Lyngbya	L	12.69	13.28	17.41	10.84	15.41	13.93	2.540
(Zea)	M	11.44	14.43	12.61	10.1		12.15	1.836
	H	8	3.62	5.67	6.57	3.13	5.40	2.032
	I	4.9	3.32	5.08	1.81	3.03	3.63	1.368
(echin)	L	23.93	23.63	23.7	22.19	24.34	23.56	0.813
	M	23.97	22.57	20.59	19.35		21.62	2.053
	H	27.16	16.67	11.36	12.98	9.59	15.55	6.995
	I	16.44	16.04	13.97	17.32	23.97	17.55	3.795
Scytonema	L	11	5.08	15.89	4.74	8.56	9.05	4.614
(echin)	M	13.7	13.57	7.77	7.36		10.60	3.509
	H	13.13	13.3	10.47	17.69	13.02	13.52	2.605
	I	7.7	9.39	13.2	9.73	7.79	9.56	2.230

Gymnodinium	L	1.42	2.45	2.06	1.48	1.61	1.80	0.440
(Peri)	M	0.86	1.1	1.01	1.03		1.00	0.101
	H	2.51	2.53	2.11	1.29	1.5	1.99	0.572
	I	1	0.88	1.14	0.92	1.1	1.01	0.112
Amphidinium	L	0.8	0.77	0.58	0.54	0.69	0.68	0.114
(Peri)	M	0.77	0.79	1.11	0.79		0.87	0.164
	H	1.03	1.21	1.21	1.54	1.62	1.32	0.248
	I	0.78	0.89	1.06	0.88	0.76	0.87	0.119
Isochrysis	L	0.99	1.18	1.06	0.85	0.97	1.01	0.121
(Fuco)	M	1.25	1.16	5.2	1.15		2.19	2.007
	H	1.4	1.61	1.74	2.17	1.63	1.71	0.285
	I	1.5	1.18	1.6	1.72	1.55	1.51	0.202
Navicula	L	1.4	0.62	0.94	1.28	1.13	1.07	0.307
(Fuco)	M	1.1	0.73	0.71	0.58		0.78	0.223
	H	1.73	5	1.91	0.54	0.79	1.99	1.780
	I							
Phaeodactylum	L	0.47	0.46	0.63	0.59	0.8	0.59	0.139
(Fuco)	M	0.73	0.72	0.46	0.74		0.66	0.135
	H	0.68	0.88	0.92	0.93	0.87	0.86	0.102
	I	0.41	0.76	0.89	0.56	0.85	0.69	0.204

Key:
L = 44.5 µmol photons m^{-2} s^{-1} (except *Lyngbya* and *Gymnodinium*, where it is 100–120 µmol photons m^{-2} s^{-1})
M = 300 µmol photons m^{-2} s^{-1}
I = 1800 µmol photons m^{-2} s^{-1}
H = 1600 µmol photons m^{-2} s^{-1}
blank cells = run not performed/no growth

Table S2: Chlorophyll-*a* to biomarker pigment weight ratios and their inverses

Genus (biomarker)	Light	Run 1	1/X	Run 2	1/X	Run 3	1/X	Run 4	1/X	Run 5	1/X	wt (mean)	StDev	1/X (mean)	1/X StDev
Closterium	L	2.55	0.393	2.86	0.349	3.27	0.305	3.08	0.324	3.460	0.289	3.04	0.35	0.332	0.041
(Chlb)	M	2.53	0.395	2.38	0.420	2.55	0.391	2.01	0.499	1.850	0.540	2.26	0.32	0.449	0.067
	H	2.83	0.353	3.07	0.325	2.57	0.389	2.46	0.407	2.250	0.445	2.64	0.32	0.384	0.047
	I	2.56	0.391	2.56	0.391	2.82	0.354	2.38	0.420	2.190	0.456	2.50	0.23	0.402	0.038
(lutein)	L	22.90	0.044	21.87	0.046	16.51	0.061	25.18	0.040	17.160	0.058	20.72	3.75	0.050	0.009
	M	10.00	0.100	11.28	0.089	6.17	0.162	2.78	0.360	4.270	0.235	6.90	3.65	0.189	0.112
	H	6.85	0.146	3.96	0.253	6.94	0.144	6.93	0.144	7.670	0.130	6.47	1.44	0.163	0.050
	I	6.63	0.151	9.40	0.106	5.02	0.199	4.69	0.213	3.600	0.278	5.87	2.25	0.190	0.065
(Zea)	L	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.000	0.000	0.00	0.00	0.000	0.000
	M	263.81	0.004	0.00	0.000	82.26	0.012	0.00	0.000	0.000	0.000	173.04	114.47	0.003	0.005
	H	74.06	0.014	45.64	0.022	26.03	0.038	42.81	0.023	33.690	0.030	44.45	18.28	0.025	0.009
	I	74.68	0.013	116.72	0.009	79.97	0.013	23.07	0.043	18.230	0.055	62.53	41.56	0.027	0.021
Cosmarium	L	3.19	0.314	2.71	0.368	3.07	0.326	3.41	0.293	3.550	0.281	3.19	0.33	0.316	0.034
(Chlb)	M	2.33	0.429	2.48	0.403	2.36	0.422	2.47	0.404	1.840	0.543	2.30	0.26	0.440	0.059
	H	2.92	0.343	2.75	0.364	2.15	0.465	2.63	0.380	2.650	0.040	2.62	0.29	0.318	0.163
	I	2.45	0.409	2.89	0.346	2.64	0.379	2.57	0.389	2.350	0.425	2.58	0.21	0.390	0.030
(lutein)	L	19.57	0.051	22.96	0.044	9.88	0.101	17.16	0.058	18.110	0.055	17.54	4.81	0.062	0.023
	M	9.39	0.107	10.03	0.100	5.60	0.179	3.14	0.319	8.910	0.112	7.41	2.94	0.163	0.092
	H	7.27	0.138	5.65	0.177	4.29	0.233	4.27	0.234	3.070	0.325	4.91	1.60	0.221	0.071
	I	7.25	0.138	4.53	0.221	9.97	0.100	8.11	0.123	6.560	0.153	7.28	2.00	0.147	0.046
(Zea)	L	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.000	0.000	0.00	0.00	0.000	0.000
	M	181.70	0.006	94.72	0.011	80.28	0.013	32.68	0.031	68.020	0.015	91.48	55.42	0.015	0.009
	H	115.11	0.009	54.38	0.018	19.44	0.051	27.37	0.037	30.333	0.033	49.33	39.02	0.030	0.017
	I	104.39	0.010	57.45	0.017	89.10	0.011	144.17	0.007	34.780	0.029	85.98	42.34	0.015	0.009
Anacystis	L	3.99	0.251	6.04	0.166	5.51	0.182	5.49	0.182	3.610	0.277	4.93	1.06	0.211	0.049
(Zea)	M	2.93	0.341	2.59	0.386	2.52	0.397	3.66	0.273			2.93	0.52	0.349	0.056
	H	2.09	0.480	1.70	0.589	1.66	0.601	1.88	0.533	1.690	0.592	1.80	0.18	0.559	0.052
	I	1.67	0.599	1.49	0.672	1.85	0.541	1.73	0.579	1.190	0.838	1.59	0.26	0.646	0.117
Lyngbya	L	19.93	0.050	20.88	0.048	27.43	0.037	17.03	0.059	24.210	0.041	21.90	4.02	0.047	0.009
(Zea)	M	17.98	0.056	22.68	0.044	19.80	0.051	15.85	0.063			19.08	2.89	0.053	0.008
	H	12.63	0.079	10.35	0.097	4.92	0.020	5.71	0.175	8.900	0.112	8.50	3.21	0.097	0.056
	I														

(Echin)	L	38.84	0.026	38.35	0.026	38.56	0.026	36.00	0.028	39.510	0.025	38.25	1.33	0.026	0.001
	M	36.28	0.028	36.61	0.027	33.39	0.030	31.39	0.032			27.53	2.48	0.023	0.002
	H	44.29	0.023	21.11	0.047	15.58	0.064	27.13	0.037	18.440	0.054	25.31	11.44	0.045	0.016
	I	26.82	0.037	26.04	0.038	28.23	0.035	9.91	0.101	38.990	0.026	26.00	10.41	0.048	0.030
Scytonema	L	17.86	0.056	8.25	0.121	25.78	0.039	7.69	0.130	13.890	0.072	14.69	7.49	0.084	0.040
(Zea)	M	22.22	0.045	22.01	0.045	12.60	0.079	11.94	0.084			17.19	5.69	0.063	0.021
	H	21.31	0.047	21.60	0.046	16.98	0.059	28.72	0.035	21.140	0.047	21.95	4.23	0.047	0.009
	I	12.51	0.080	21.46	0.047	15.80	0.063	12.65	0.079	15.270	0.066	15.54	3.63	0.067	0.014
Gymnodinium	L	2.02	0.495	3.48	0.287	2.91	0.343	2.10	0.477	2.300	0.439	2.56	0.62	0.408	0.090
(Peri)	M	1.22	0.816	1.56	0.640	1.43	0.698	1.46	0.686			1.42	0.14	0.568	0.075
	H	3.55	0.282	3.59	0.279	3.00	0.383	1.82	0.549	2.130	0.471	2.82	0.81	0.373	0.118
	I	1.42	0.705	1.25	0.800	1.62	0.619	1.30	0.768	1.560	0.643	1.43	0.16	0.707	0.078
Amphidinium	L	1.14	0.877	1.09	0.920	0.83	1.211	0.76	1.315	0.990	1.015	0.96	0.16	1.067	0.189
(Peri)	M	1.08	0.922	1.12	0.893	1.57	0.639	1.10	0.908			1.22	0.24	0.840	0.135
	H	1.46	0.687	1.72	0.582	1.71	0.584	2.19	0.456	2.300	0.435	1.88	0.35	0.549	0.103
	I	1.10	0.918	1.26	0.796	1.50	0.669	1.25	0.802	1.080	0.925	1.24	0.17	0.822	0.105
Isochrysis	L	1.52	0.658	1.77	0.564	1.59	0.631	1.29	0.776	1.450	0.692	1.52	0.18	0.664	0.078
(Fuco)	M	1.86	0.538	1.75	0.572	7.81	0.128	1.71	0.586			3.28	3.02	0.456	0.220
	H	2.13	0.470	2.40	0.416	2.25	0.444	3.27	0.306	2.480	0.403	2.51	0.45	0.408	0.063
	I	2.30	0.435	1.77	0.564	2.44	0.410	2.58	0.387	2.280	0.439	2.27	0.31	0.447	0.069
Navicula	L	2.08	0.482	0.94	1.063	1.48	0.675	1.90	0.527	1.720	0.581	1.62	0.44	0.665	0.234
(Fuco)	M	1.79	0.560	1.09	0.919	1.05	0.950	0.94	1.064			1.22	0.39	0.873	0.218
	H	2.57	0.389	7.37	0.136	2.78	0.359	0.83	1.199	1.560	0.640	3.02	2.55	0.545	0.407
	I														
Phaeodactylum	L	0.70	1.434	0.68	1.469	0.95	1.047	0.88	1.136	1.200	0.832	0.88	0.21	1.183	0.269
(Fuco)	M	1.08	0.923	1.07	0.935	0.69	1.452	1.09	0.914			0.98	0.20	1.056	0.264
	H	1.03	0.973	1.36	0.736	1.37	0.733	1.40	0.714	1.270	0.786	1.29	0.15	0.788	0.107
	I	0.62	1.608	1.15	0.873	1.34	0.748	0.85	1.179	1.270	0.783	1.05	0.30	1.038	0.361

Key:
L = 44.5 µmol photons m^{-2} s^{-1} (except for *Lyngbya* and *Gymnodinium*, where it is 100–120 µmol photons m^{-2} s^{-1})
M = 300 µmol photons m^{-2} s^{-1}
I = 1800 µmol photons m^{-2} s^{-1}
H = 1600 µmol photons m^{-2} s^{-1}
blank cells = run not performed/no growth