

Supplement

Table S1. Collection dates for algae used in single exposure and daily exposure experiments. Voucher specimens for all four species have been deposited in Western Washington University's Pacific Northwest Herbarium (<http://myweb.facstaff.wwu.edu/dechaie/herbarium.html>).

Species	Single Exposure	Daily Exposure
<i>Ulva intestinalis</i>	August 20, 2015	August 23, 2015
<i>Ulva linza</i>	August 15, 2015	July 14, 2015
<i>Ulva fenestrata</i>	April 20, 2015	April 20, 2015
<i>Ulvaria obscura</i>	May 19, 2015	May 23, 2015

Table S2. Results of repeated measures analysis of variance examining the effects of H₂O₂ concentrations and sampling date on *Ulva intestinalis* DMSP concentrations. A) Single exposure experiments, B) daily exposure experiments

A) Single Exposure

Source	df	Sum of Squares	Mean Sum of Squares	F	P
H ₂ O ₂ Concentration	3	4381734712	1460578237	2.58	0.062
Date	1	668336333	668336333	1.18	0.282
H ₂ O ₂ Concentration x date	3	894149880	298049960	0.53	0.666
Error	58	32859601317	566544850		
Total	65	39197967157			

B) Daily Exposure

Source	df	Sum of Squares	Mean Sum of Squares	F	P
H ₂ O ₂ Concentration	3	19607	6536	2.38	0.076
Date	1	144853	144853	52.74	0.000
H ₂ O ₂ Concentration x date	3	16748	5583	2.03	0.116
Error	78	214239	2747		
Total	85	391679			

Table S3. Results of repeated measures analysis of variance examining the effects of H₂O₂ concentrations and sampling date on *Ulva linza* DMSP concentrations. A) Single exposure experiments, B) daily exposure experiments

A) Single Exposure

Source	df	Sum of Squares	Mean Sum of Squares	F	P
H ₂ O ₂ Concentration	3	41472	13824	9.20	0.000
Date	1	752844	752844	500.78	0.000
H ₂ O ₂ Concentration x date	3	9064	3021	2.01	0.118
Error	88	132294	1503		
Total	95	935674			

B) Daily Exposure

Source	df	Sum of Squares	Mean Sum of Squares	F	P
H ₂ O ₂ Concentration	3	11.035	3.678	1.47	0.229
Date	1	343.429	343.429	136.91	0.000
H ₂ O ₂ Concentration x date	3	0.559	0.186	0.07	0.974
Error	88	220.748	2.509		
Total	95	575.771			

Table S4. Results of repeated measures analysis of variance examining the effects of H₂O₂ concentrations and sampling date on *Ulva fenestrata* DMSP concentrations. A) Single exposure experiments, B) daily exposure experiments

A) Single Exposure

Source	df	Sum of Squares	Mean Sum of Squares	F	P
H ₂ O ₂ Concentration	3	17146	5715	5.08	0.003
Date	1	8090	8090	7.19	0.009
H ₂ O ₂ Concentration x date	3	27360	9120	8.11	0.000
Error	88	99016	1125		
Total	95	151610			

B) Daily Exposure

Source	df	Sum of Squares	Mean Sum of Squares	F	P
H ₂ O ₂ Concentration	3	0.3111	0.10371	4.29	0.007
Date	1	6.0602	6.06019	250.88	0.000
H ₂ O ₂ Concentration x date	3	1.7685	0.58952	24.40	0.000
Error	88	2.1257	0.02416		
Total	95	10.2656			

Table S5. Results of repeated measures analysis of variance examining the effects of H₂O₂ concentrations and sampling date on *Ulvaria obscura* DMSP concentrations. A) Single exposure experiments, B) daily exposure experiments

A) Single Exposure

Source	df	Sum of Squares	Mean Sum of Squares	F	P
H ₂ O ₂ Concentration	3	34117	11372.3	19.97	0.000
Date	1	9315	9314.6	16.36	0.000
H ₂ O ₂ Concentration x date	3	10210	3403.4	5.98	0.001
Error	88	50111	569.4		
Total	95	103753			

B) Daily Exposure

Source	df	Sum of Squares	Mean Sum of Squares	F	P
H ₂ O ₂ Concentration	3	43436	14478.8	27.12	0.000
Date	1	3596	3596.5	6.74	0.011
H ₂ O ₂ Concentration x date	3	3622	1207.3	2.26	0.087
Error	88	46976	533.8		
Total	95	97631			