

H2: Supplementary Materials ICP-AES Results

ICP-AES Results

Concentration (%)	Sample Identifier	Ca 3158R intensity	Ca 3158R (ppb)	Ca 3158R (mol)	0.2% Ca (mol)
0.202	sample 3	917000	756716.856	0.019	0.019
0.199	sample 4	876900	723625.587	0.018	0.018
0.210	sample 5	913000	753415.981	0.019	0.018
0.192	sample 6	896400	739717.351	0.018	0.019
0.196	sample 7	869450	717477.708	0.018	0.018
0.194	sample 8	844300	696723.458	0.017	0.018
0.202	sample 9	797500	658103.223	0.016	0.016
0.203	sample 10	948600	782793.766	0.020	0.019
0.205	sample 11	908800	749950.063	0.019	0.018
0.216	sample 12	858000	708028.954	0.018	0.016
0.199	sample 13	900000	742688.138	0.019	0.019
0.213	sample 15	805200	664457.407	0.017	0.016
0.208	sample 16	844700	697053.545	0.017	0.017
	Average				0.018
	Standard deviation				0.001
	Relative standard deviation				6.610

Concentration (%)	Sample Identifier	Mg 2795R Intensity	Mg 2795R (ppb)	Mg 2795R (mmol)	0.2% Mg (mmol)
0.202	sample 3	116100	2121.011	0.087	0.086
0.199	sample 4	95940	1751.571	0.072	0.073
0.210	sample 5	126400	2309.763	0.095	0.090
0.192	sample 6	112300	2051.375	0.084	0.088
0.196	sample 7	103250	1885.530	0.078	0.079
0.194	sample 8	94040	1716.752	0.071	0.073
0.202	sample 9	131000	2394.060	0.099	0.098
0.203	sample 10	111700	2040.379	0.084	0.083
0.205	sample 11	108600	1983.571	0.082	0.079
0.216	sample 12	102700	1875.451	0.077	0.072
0.199	sample 13	98640	1801.049	0.074	0.075
0.213	sample 15	101800	1858.958	0.076	0.072
0.208	sample 16	113400	2071.533	0.085	0.082
	Average				0.081
	Standard deviation				0.008
	Relative standard deviation				10.105

Concentration (%)	Sample Identifier	Sr 4077R Intensity	Sr 4077R (ppb)	Sr (mmol)	0.2% Sr (mmol)
0.202	sample 3	953800	15010.661	0.171	0.170
0.199	sample 4	954300	15018.529	0.171	0.173
0.210	sample 5	946400	14894.208	0.170	0.162
0.192	sample 6	922100	14511.801	0.166	0.173
0.196	sample 7	905050	14243.488	0.163	0.166
0.194	sample 8	884900	13926.390	0.159	0.164
0.202	sample 9	833500	13117.514	0.150	0.148
0.203	sample 10	1010000	15895.073	0.181	0.178
0.205	sample 11	980000	15422.967	0.176	0.171
0.216	sample 12	908500	14297.780	0.163	0.151
0.199	sample 13	977200	15378.904	0.176	0.177
0.213	sample 15	847800	13342.551	0.152	0.143
0.208	sample 16	867800	13657.289	0.156	0.150
	Average				0.163
	Standard deviation				0.012
	Relative standard deviation				7.187

Concentration (%)	Sample Identifier	Na 5899R Intensity	Na 5899R (ppb)	Na 5899R (mmol)	0.2% Na (mmol)
0.202	sample 3	51620	8365.142	0.364	0.360
0.199	sample 4	50870	8163.540	0.355	0.357
0.210	sample 5	52770	8674.265	0.377	0.359
0.192	sample 6	50920	8176.980	0.356	0.370
0.196	sample 7	49975	7922.961	0.345	0.351
0.194	sample 8	49740	7859.792	0.342	0.353
0.202	sample 9	47350	7217.354	0.314	0.311
0.203	sample 10	52840	8693.081	0.378	0.372
0.205	sample 11	53340	8827.482	0.384	0.374
0.216	sample 12	50460	8053.330	0.350	0.325
0.199	sample 13	51920	8445.782	0.367	0.370
0.213	sample 15	49470	7787.216	0.339	0.318
0.208	sample 16	49250	7728.079	0.336	0.323
	Average				0.349
	Standard deviation				0.022
	Relative standard deviation				6.402

Concentration (%)	Sample Identifier	K 7698 Intensity	K 7698 (ppb)	K 7698 (mmol)	0.2% K (mmol)
0.202	sample 3	6718	155.236	0.004	0.004
0.199	sample 4	6901	158.814	0.004	0.004
0.210	sample 5	7452	169.589	0.004	0.004
0.192	sample 6	6645	153.808	0.004	0.004
0.196	sample 7	6490	150.777	0.004	0.004
0.194	sample 8	6815	157.133	0.004	0.004
0.202	sample 9	6683	154.551	0.004	0.004
0.203	sample 10	7317	166.949	0.004	0.004
0.205	sample 11	7536	171.231	0.004	0.004
0.216	sample 12	6978	160.320	0.004	0.004
0.199	sample 13	7178	164.231	0.004	0.004
0.213	sample 15	6641	153.730	0.004	0.004
0.208	sample 16	6513	151.227	0.004	0.004
	Average				0.004
	Standard deviation				0.000
	Relative standard deviation				4.817

ICP-AES Standard Data

XSTC	10 ppm (certificate value)	10000ppb	5000ppb	1000ppb	500ppb	100ppb	10ppb	1ppb
Ca	10.1	10100.000	5071.407	1015.465	511.225	103.673	10.359	1.032
K	9.97	9970.000	5006.132	1002.395	504.645	102.339	10.225	1.018
Mg	10.1	10100.000	5071.407	1015.465	511.225	103.673	10.359	1.032
Na	9.88	9880.000	4960.941	993.346	500.090	101.415	10.133	1.009
Sr	9.95	9950.000	4996.089	1000.384	503.633	102.133	10.205	1.016

JCp1	Original JCp1(ppb)	JCp1 10% (ppb)	Measured Value (ppb)	Measured Value/JCp1 (%)
Ca	6489870.000	739845.180	711247.306	0.961
K	1479.000	168.606	156.976	0.931
Mg	4901.000	558.714	550.706	0.986
Na	73771.000	8409.894	8561.368	1.018
Sr	23427.000	2670.678	2661.931	0.997

JCp1	Original JCp1(ppb)	JCp1 7.5% (ppb)	Measured Value (ppb)	Measured Value/JCp1 (%)
Ca	6489870.000	556181.859	536218.424	0.964
K	1479.000	126.750	125.591	0.991
Mg	4901.000	420.016	415.098	0.988
Na	73771.000	6322.175	6421.698	1.016
Sr	23427.000	2007.694	2021.440	1.007

JCp1	Original JCp1(ppb)	JCp1 5% (ppb)	Measured Value (ppb)	Measured Value/JCp1 (%)
Ca	6489870.000	382902.330	362757.457	0.947
K	1479.000	87.261	92.524	1.060
Mg	4901.000	289.159	277.657	0.960
Na	73771.000	4352.489	4136.874	0.950
Sr	23427.000	1382.193	1361.750	0.985

***A. digitifera* Growth Rate Data**

Sample Identifier	Growth Rate (%)
sample 3	0.531
sample 4	1.608
sample 5	0.284
sample 6	0.364
sample 7	1.065
sample 8	1.299
sample 9	0.228
sample 10	1.374
sample 11	0.996
sample 12	0.710
sample 13	0.648
sample 15	1.037
sample 16	1.648

Examples of Literature for Each Element in Table 1

(1) Li:

Hathorne, E. C., Felis, T., Suzuki, A., Kawahata, H. and Cabioch, G. (2013) Lithium in the aragonite skeletons of massive *Porites* corals: A new tool to reconstruct tropical sea surface temperatures. *Paleoceanogr.* **28**, 143–152.

(2) O:

Hirabayashi, S., Yokoyama, Y., Suzuki, A., Kawakubo, Y., Miyairi, Y., Okai, T. and Nojima, S. (2013) Coral growth-rate insensitive Sr/Ca as a robust temperature recorder at the extreme latitudinal limits of *Porites*. *Geochem. J.* **47**, e1–e5.

(3) Na:

Mitsuguchi, T., Ueda, T. and Matsumoto, E. (2010) Na/Ca variability in coral skeletons. *Geochem. J.* **44**, 261–273.

(4) Mg:

Inoue, M., Suzuki, A., Nohara, M., Hibino, K. and Kawahata, H. (2007) Empirical assessment of coral Sr/Ca and Mg/Ca ratios as climate proxies using colonies grown at different temperatures. *Geophys. Res. Lett.* **34**, L12611.

(5) Ca: all the literatures besides (2) and (7)

(6) Sr:

Bell T., Nishida, K., Ishikawa, K., Suzuki, A., Nakamura, T., Sakai, K., Iguchi, A. and Yokoyama, Y. (2017) Temperature controlled culture experiments using primary polyps of coral *Acropora digitifera*: their calcification rate variations and skeletal Sr/Ca, Mg/Ca, and Na/Ca ratios. *Paleogeogr. Paleoclimatol. Paleoecol.* **429**, 129–135.

(7) U:

DeCarlo, T. M., Gaetani, G. A., Cohen, A. L., Foster, G. L., Alpert, A. E. and Stewart J. A. (2016) Coral Sr-U thermometry. *Paleoceanogr.* **31**, 626–638.