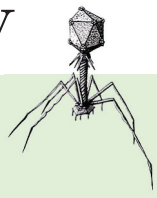
Supplementary Information



Supplementary Information

Seven competition experiments were performed between pairs of selected *Micromonas* strains from the infectivity experiment (**Paper I**). Prior to the experiment, *Micromonas* cultures were maintained in exponential growth phase with cell concentrations ranging from 10^5 to 10^6 cells mL^{-1}. The experiments were performed in 50mL glass flasks under the same temperature and light conditions described in **Paper I**. 30mL of each algal culture at 1x10^5 cells mL^{-1}, were incubated in 3 or 6 replicates (controls). The competition samples consisted of 30mL triplicates, which contained a mix of 15mL of each algal strain at 1x10^5 cells mL^{-1}. All samples were incubated for 7 days. After that, cultures were centrifuged at 12000 x g for 20min at 10°C. The supernatant was discarded and the pellet was stored at -80°C until further use.

The DNA extraction was conducted with a PureLink® Genomic DNA kit (Thermofisher Scientific, Invitrogen, USA) following the manufacturer's protocol. DNA concentration was quantified with Qubit® 2.0 fluorometer (Invitrogen, USA). To target the 18S rRNA gene we used the following primers: Euk328f (5'-ACCTGGTTGATCCTGCCAG-3') and Euk329r (5'-TGATCCTTC YGCAGGTTCAC-3') (Romari and Vaulot, 2004; Moon-van der Staay *et al.*, 2000), ITS5f (5' - GAAAGTAAAAGTCGTAACAAGG - 3') and ITS4r (5' - TCCTCCGCTTATTGATATGC - 3') (White, 1990) , ACTf (5'-TGGGACGACATGGAGAAGATC-3') and ACTr (5'-ACGTACGCGAGCTTCTCCTT-3') (Simmons *et al.*, 2015), CaATPf (5'-GGTBCTCGCMGACGACAA-3') and CaATPr (5'-TCCAGCGGSACGATG-3') (Simmons *et al.*, 2015). The 20-µl PCR mix consisted of 1 µL of DNA, 10 µL of Hotstart MasterMix (Qiagen, Germany) containing 2.5U of Taq polymerase, 1.5 µM $MgCl_2$, 200 µM of dNTP, and 1µl of each primer (10 mM.) The PCR cycling parameters were 95 °C for 15 min followed by 35 cycles of 95 °C for 30 sec, (55, 46, 53.3 and 56.7, respectively) °C for 30 sec, and 72 °C for 1 min, with a final extension step at 72 °C for 7 min. PCR products were quantified again with Qubit® 2.0 fluorometer (Invitrogen, USA).

Finally, an enzymatic digestion with BsuRI (Thermofisher, USA) was performed with 10 µl of each PCR product, 5U of enzyme and 2 µL of FastDigest buffer (with a final volume of 30 µL) during 30 min at 37 °C. PCR products were directly loaded into 1% gel agarose, along with 4 standards per algal strain with known algal concentrations (10^5, $5x10^5$, 10^6 and 10^7 cells/mL) that were treated as described above for the experimental samples. Algal strains in competition samples were discriminated due to a differently cut of the restriction enzymes and their relative presence was approximated to the intensity of the standard bands (**Table S1**).

Table S1: Competition experiments' results. $[\ ]_i$= initial concentration (cells/mL), $[\ ]_f$= final concentration (cels/mL), µ= growth rate (d^{-1}), SD= standard deviation, E[ ]= estimated concentration. * Sample replicate.

				Competition experiments							
				Controls					Mixed		
No.	Algal strains	Primers	Restriction enzyme	Replicates	$[\ ]_i$	$[\ ]_f$	µ	±SD	Total $[\ ]_i$	Total $[\ ]_f$	E [ ]
1	844	Euk328f and Euk329r	BsurI	3	$1.09x10^5$	$9.60x10^6$	0.64	0.01	$1.22x10^5$	$7.78x10^6$	10^7
	1629			6	$1.38x10^5$	$9.37x10^6$	0.60	0.04			0
2	451	CaATPf and CaATPr	BsurI	6	$9.14x10^4$	$7.26x10^6$	0.62	0.02	$9.19x10^4$	$5.66x10^6$	10^6
	570			6	$9.45x10^4$	$7.05x10^6$	0.62	0.01			10^4
3	573	ACTf and ACTr	BsurI	*	$9.67x10^4$	$1.69x10^6$	0.41	0.04	$1.01x10^5$	$5.58x10^6$	10^5
	829			*	$1.07x10^5$	$2.93x10^6$	0.47	0.04			10^6
4	434	Euk328f and Euk329r	BsurI	*	$1.08x10^5$	$2.95x10^6$	0.47	0.002	-	$4.01x10^6$	10^4
	449			*	$1.06x10^5$	$3.74x10^6$	0.51	0.001			10^6
5	692	ACTf and ACTr	BsurI	6	$9.98x10^4$	$1.46x10^7$	0.71	0.02	$9.48x10^4$	$1.58x10^7$	10^4
	844			6	$9.76x10^4$	$1.42x10^7$	0.71	0.01			10^6
6	658	ITS5f and ITS4r	BsurI	6	$1.12x10^5$	$6.08x10^6$	0.57	0.03	$1.14x10^5$	$3.65x10^6$	10^5
	1862			3	$1.17x10^5$	$6.21x10^6$	0.57	0.06			10^4
7	658	ITS5f and ITS4r	BsurI	6	$1.12x10^5$	$6.08x10^6$	0.57	0.03	$1.26x10^5$	$5.44x10^6$	10^6
	1629			6	$1.38x10^5$	$9.37x10^6$	0.60	0.04			10^4

Moon-van der Staay, S. Y., van der Staay, G. W. M., Guillou, L., Vaulot, D., Claustre, H. and Medlin, L. K. (2000) Abundance and diversity of prymnesiophytes in the picoplankton coµmunity from the equatorial Pacific Ocean inferred from 18S rDNA sequences. Limnology and Oceanography, 45, 98-109.

Romari, K. and Vaulot, D. (2004) Composition and temporal variability of picoeukaryote communities at a coastal site of the English Channel from 18S rDNA sequences. Limnology and Oceanography, 49, 784-798.

Simmons, M. P., Bachy, C., Sudek, S., van Baren, M. J., Sudek, L., Ares, J. M. and Worden, A. Z. (2015) Intron Invasions Trace Algal Speciation and Reveal Nearly Identical Arctic and Antarctic Micromonas Populations. Molecular Biology and Evolution, 32, 2219-2235.

White, T. J., T. Bruns, S. Lee, and J. W. Taylor (1990) Amplification and direct sequencing of fungal ribosomal RNA genes for phylogenetics. In PCR Protocols: A Guide to Methods and Applications (Ed, Innis, M. A., D. H. Gelfand, J. J. Sninsky, and T. J. White) Academic Press, Inc., New York, pp. 315-322.

Errata for

Viral-host interactions:

from strain to natural planktonic communities

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Thesis for the degree philosophiae doctor (PhD)

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Errata

Page 14 "(ref)" now reads "(Hutchinson, 1961)"

Page 27 " Figure 3A had wrong labels"