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***Interactive comment on* “Intriguing diversity among diazotrophic picoplankton along a Mediterranean transect: from the origin of plastids to the dominance of rhizobia” by M. Le Moal et al.**

Anonymous Referee #1

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REVIEW- INTRIGUING DIVERSITY AMONG DIAZOTROPHIC PICOPANKTON ALONG A MEDITERRANEAN TRANSECT: FROM THE ORIGIN OF PLASTIDS TO THE DOMINANCE OF RHIZOBIA

THIS STUDY REPORTS DATA ON THE DIAZOTROPHIC DISTRIBUTION AND RICHNESS ACROSS THE MEDITERRANEAN SEA, INCLUDING CELLULAR COUNTS, SIZE FRACTIONATED TED-FISH AND 16S RDNA AND NIFH BASED PHYLOGENIES.

GENERAL COMMENTS- THIS MANUSCRIPT NEEDS EDITING, AND GRAMMAR, SPELLING CORRECTIONS THROUGH OUT. THE MAIN CONCLUSIONS ARE NOT

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SUSTAINED. AUTHORS DO NOT FIND A POSSITIVE SIGNAL FOR UNICELLULAR CYANOBACTERIA B,C RELATED TO HIGH RATES OF N₂ FIXATION IN OTHER BASINS. INSTEAD OF PRESENTING THEIR DATA AS IS, THEY ATTEMPT A DISCUSSION THAT IS NOT SUSTAINED. BASICALLY, DUE TO THE CLOSE RELATIONSHIO OF UNICELLULAR N₂-FIXING CYANOBACTERIA AND PLASTIDS, THEIR UCYN PROBE COULD BE POSSITIVE IN PRESENCE OF THE LATER. NO EXPERIMENTS TESTING THE PROBE IN A VARIETY OF PLASTIDS WAS SHOWN.

PG 3- LINE 6- COMPARED TO REDFIELDS (N:P = 16:1)... PG 3- LINE 17- CONTROLLED... PG 3- LINE 18- SAÑUDO-WILHELMY ET AL., 2001)... PG 3- LINE 25 ... THAN LARGER ONES (THEIR IS A MEPS 2005 BY FALCON ET AL THAT WORKS ON P ADQUISITION BY UNICELLULAR FIXERS). PG 4- LINE 25- ... WERE LOW ALONG A SEASONAL CYCLE (4.6 CELLS ML⁻¹) COMPARED TO ABUNDANCE ESTIMATES FROM OTHER OCEANIC BASINS (CITE RELEVANT REFERENCES)..., EXCEPT FOR SUMMER ABUNDANCES THAT REACHED 1900-5300 PG 5-LINE 3- (Q-PCR) OF NIFH COPIES... PG 5- LINES 1-24, RE WRITE, MIXED IDEAS AND MAJOR ENGLISH GRAMMAR ISSUES. PG 7- LINE 6, CROCOSPAHERA WATSONII WH8501 WAS... PG 7-LINE 7, CELLS WERE SUBSEQUENTLY... ACCORDING TO BIEGALA AND RAIMBAULT... PG 11-LINE 1, FROM SEVEN TO 1 CELL ML⁻¹... PG 13-LINE 4- REVEALED A VERY... PF 14- RE WRITE, LINES 19-28... IDEAS ARE MIXED, GENERAL ENGLISH USAGE... PG 14- LINE 14 ON... PG 15-LINE IS 18... THIS RELEVANT? PG 15- LINE 22- RE WRITE...PG 16- LINE 14- THE R. GIBBA SYMBIONT HAS...., WHILE IN THIS STUDY NIFH GENE WAS NOT AMPLIFIED... CONTRADICTORY, NOT CLEAR. PG 17- LINE 18- FOR TWO THIRDS... PG 18 NEEDS AN IN DEPTH REVISION OF GRAMMAR... LAST SENTENCE- CLARIFY SINCE THE MEDITERRANEAN IS KNOWN FOR IRON DEPOSITION FROM THE SAHARA. PG 21-LINES 3- ARE NOT EXPRESSED AS HYPOTHESIS...

THE CONCLUSSION THAT PLASTID SEQUENCES RECOVERED WITH UCYN PROBE REGARDING THE SEQUENCES RECOVERED IS OVER DIMENSHIONED.

OBVIOUSLY, YOU WOULD HAVE A POSSITIVE SIGNAL FOR THE UCYN PROBE WITH PLASTIDS SIMPLY DUE TO THEIR CLOSE PHYLOGENETIC AFFILITION. THE NULL EXPLANATION IS THAT NO-UCYN WERE PRESENT IN THE SAMPLES, AND ONLY PLASTIDS WERE SEEN.

Interactive comment on Biogeosciences Discuss., 7, 8779, 2010.

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