

Interactive comment on “Effects of ultraviolet radiation on photosynthetic performance and N₂ fixation in *Trichodesmium erythraeum* IMS 101” by Xiaoni Cai et al.

Xiaoni Cai et al.

xc_601@usc.edu

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General Comments: Also the ecological consequences in a climate change context must be highlighted in the discussion section as well as including future research that would be necessary to confirm and/or deepen the consequences of the studied effects in C and N cycle on the ocean (see *Trichodesmium* ecological role as C and N source in the ocean, Berger et al., 2012).

Response: we added discussion in Line 510-511: “future research that would be necessary to confirm and/or deepen the consequences of UV effects in carbon and nitrogen cycle in the ocean.”

C1

Specific Comments

Comments:Introduction The general objective of your investigation is not sufficiently justified, it would be better to connect your work with the need to investigate about the topics that are not explored yet (i.e., UVR effects on N₂ fixation) and emphasize the importance of your results in the context of climate change. For example: Because of the importance of *Trichodesmium* in the input of carbon and nitrogen on oligotrophic oceans, and the lack of studies about the impact of enhanced UVR on the C and N fixation, is that we design experiments : : : : : .. In particular, we evaluated the role of UVR in decreasing: : : : : The UVR doses we used represent realistic values in a current scenario (or future scenario of climatic change by the year : : : : : : :)

Response: we added texts in new line78-80: “Because of the importance of *Trichodesmium* in the input of carbon and nitrogen on oligotrophic oceans, and the lack of studies about the impact of enhanced UVR on the C and N fixation, is that we design the experiments.”

Comments: Material and Methods 1.-Line 87: I would replace “Estrategy Work” by “Experimental Design”, and start explaining the experiments regarding the study0s objective. For example, “The experiments to evaluate: : : : : .were carried on..... as follows:”

Responses: We replace “study strategy” by “experimental design”. And added texts in line 88-90: “The experiments to evaluate how UVR affects photosynthesis and N₂ fixation of *Trichodesmium* were carried on indoor and outdoor as follows:”

2.-Line 154: The specific growth rate is only calculated for days 8 to 11 and 12 to 16. What happened from days 1 to 7 is not shown, nor justified the reasons for that. If your study only assesed the exponential growth phase, it is necessary to define it.

Responses: We added texts to explain it in new line 154-155: “In order to evaluate

C2

