

Review of: "Effects of experimental CO₂ enrichment on the PSII photochemical efficiency of *Symbiodinium* sp. in *Acropora millepora*"

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Potential competing interests: No potential competing interests to declare.

The author reported the lab-scale PSII photochemical measurements on *Symbiodinium* sp. through CO₂ enrichment. The idea of this work is thoughtful, and each aspect was considered to mimic growth in real seawater conditions.

In the introduction, the author should address the recent global CO₂ level in ppm or μatm units. It is essential to create awareness of global warming and let the readers know this trend could lead to CO₂ enrichment in seawater in the future. Besides, this work takes the recent global CO₂ level as a baseline, in which the experiment was conducted above the recent global CO₂ level.

The experimental methodology was reported in detail from all aspects. However, the author should bear in mind that the supply of the synthetic mixture of 5% CO₂ and 21% O₂ in N₂ to the seawater was limited by the light, as part of the findings. The *Symbiodinium* sp. needs a higher amount of hu to enhance the PSII. Therefore, a higher pCO₂ results in a higher acidity of seawater. But will it affect the *Symbiodinium* sp. growth and PSII photochemical efficiency? Can you provide specific suggestions on how the introduction can better address the current global CO₂ levels and their implications for future seawater conditions? However, the pH levels were reported to be correlated with the pCO₂ supplied in seawater.

Several sentences refer to S1 Table 2, but Table 2 is not provided throughout the article.

Three tanks supplied with 5% CO₂ and 21% O₂ in N₂ approximate 500-1200 μatm . Please specify what the reason is for using the pCO₂ up to 1200 μatm . Could you clarify how the light conditions used in the experiment might limit the results and suggest any adjustments to the light conditions that could improve the study's findings? The author should have a prediction on the purpose of this range; it could be due to the reason in which year in the future the global CO₂ level will reach 1200 μatm or based on any precedent reported works.