

Itemized response to reviewers' comments:

(Note: All the numbers of the following "line (L)" are according to those in the Water-2371969 revised manuscript.)

Reviewer 3

Comments and Suggestions for Authors

Revised manuscript entitled 'Evaluation of the effects of different phosphorus sources on *Microcystis aeruginosa* growth and microcystin production via transcriptomic surveys' was presented for consideration.

Authors very kindly responded to my questions. Manuscript is presented in improved form. Apart from few things pointed out in Language section of the review, I only see one substantial error in the text:

1.-Lines 271-273 'PS I contains specialized reaction center and antenna proteins that convert light energy into chemical energy, while PS II contains a complex of proteins and cofactors that split water and generate oxygen' This is not true. Both PSI and PSII take part in photosynthetic electron transport chain - in other words: in conversion of light energy into energy of chemical bonds. Additionally, there is an oxygen evolving complex associated with PSII, that provides electrons for photosynthetic electron transport chain.

Thank you for clarifying the information provided in our previous statement. Now this sentence was rewritten in L263-264: “ both PS I and PS II take part in the conversion of light energy into energy of chemical bonds”.

After this and language errors are corrected I think the manuscript will be fit for publication in Water.

Comments on the Quality of English Language

English language is of good quality. The only things I have to point out are:

1.-Line 311 'were' is used instead of 'was'.

Thank you so much for your careful check. We have replaced ‘were’ with ‘was’ in L298.

2.-Word 'algae' was replaced by 'cyanobacteria' in the whole text without taking care of whether the phrase need 'cyanobacteria' or 'cyanobacterial'. This must be corrected.

Based on the following references, we have made the corrections in the revised manuscript.

Huisman J, Codd G A, Paerl H W, et al. Cyanobacterial blooms[J]. Nature Reviews Microbiology, 2018, 16(8): 471-483.

Plaas H E, Paerl H W. Toxic cyanobacteria: a growing threat to water and air quality[J]. Environmental Science & Technology, 2020, 55(1): 44-64.

3.-Line 412 'bioavailability of M. aeruginosa to DOP' - shouldn't it be the other way around? bioavailability of DOP to M. aeruginosa?

We are very sorry for our incorrect writing. Now we have revised it in L393: “bioavailability of DOP to *M. aeruginosa*”.

4.-Unify the way you write 'upregulation'. There are both 'upregulation' and 'up-regulation' in the text.

We unified the writing in the revised manuscript: 'upregulation'.

5.-Lines 536-537 'A crucial step of MCs biosynthesis is involved by the enzymes encoded by the *mcy* gene cluster' - this sentence must be corrected.

This sentence was revised in L505-506: “Enzymes encoded by the *mcy* gene cluster play a crucial role in the biosynthesis of MCs.”

6.-Bacterial gene names comprise of three lower case letters followed by a capital letter. Authors should stick to this general rule.

We have made corrections according to the reviewer's comments. In the revised manuscript, we stick to this rule in both the text and Figures (2&5).