

Interactive comment on “Local nutrient regimes determine site-specific environmental triggers of cyanobacterial and microcystin variability in urban lakes” by S. C. Sinang et al.

Anonymous Referee #1

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The manuscript addresses one of the key questions in phytoplankton ecology, namely what environmental factors are the key drivers for the development of cyanobacterial blooms. The experimental study was carried out in three urban lakes with different features and the results can be useful to manage the cyanobacterial blooms in this type of lacustrine ecosystem. The methodological approach used is fully convincing, the data obtained are properly treated, analysed and discussed. The selected literature is appropriate and updated. In particular, I appreciated that part of the work dealing with the analysis of microcystin and the environmental factors triggering its production. My main concern is about the use of the concept of nutrient limitation, that does not

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seems to be fully applicable to the lakes investigated. Some specific comments about this point are reported below, together with other suggestions.

Line 15, pag.4. A map showing the position of the lakes would be helpful.

Line 11, pag.10. Bimonthly: I suppose this means twice a month...

Pag.12, line 9. It is possible that the positive correlation with TN:TP is not driven by nitrogen, but is simply the result of the negative correlation between cyanobacteria and TP.

Pag.15, lines 2-5. About the relationship between cyanobacteria and TP, my main concern is that none of the lakes you studied are phosphorus limited. Moreover, the absolute biomass of cyanobacteria is significantly higher in the lake with the highest TP concentration. Why do not carry out a RDA analysis with the absolute cyanobacterial biomass, instead of their relative proportion? I suspect that the relationships could be quite different...

Pag.15, lines 7-13. According to Reynolds (2006), the ability of Microcystis, the most abundant taxon in your lakes, to become dominant under P limiting conditions is not so straightforward. In general, cyanobacteria as a group can dominate under a very wide spectrum of trophic conditions, depending on the species involved and their respective growth and survival strategies

Pag. 15, lines 27-29. In general terms, a high TN:TP ratio does not necessarily indicate a P limitation, because the limitation depends on the absolute nutrient concentration, not on the ratio. Nutrient ratio can be quite variable from time to time, but, considering the data on absolute concentration, phosphorus limitation seems to be an exception in these lakes.

Table 1. Check the range for TDP in Bibra Lake: 16.0-18.0 seems not correct respect to Mean and SD.

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