Qeios

Peer Review

Review of: "Cyanobacterial Biomass Estimation in Subtropical and Temperate Reservoirs by Sentinel-2"

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The manuscript addresses an important topic and presents an innovative approach for the determination and monitoring of cyanobacterial biomass in aquatic ecosystems, while also compiling data from environments located in different climatic zones. However, I would like to raise several considerations regarding the manuscript.

First, I believe the abstract is too superficial and does not provide information that effectively captures the interest of potential readers. Statements such as *"In the temperate zone, the annual variation registered a minimum and a maximum annual value, while more variations were registered in the subtropical zone"* do not convey any meaningful information. This issue is present throughout the entire abstract.

In the Materials and Methods section, the authors state that *"the Chl-a was extracted using standard methods."* It is important to specify which extraction method was actually used. Regarding cyanobacteria, after cell counting, the biovolume was estimated, and the authors then state that the values were converted to mm^3. However, this step actually corresponds to the conversion of biovolume into biomass when the values are divided by 10^6, considering that 1 mm^3 L^{-1} is equivalent to 1 mg L^{-1} (Wetzel & Likens, 2000). The following reference may be appropriate: Wetzel, R. G., et al. *Composition and biomass of phytoplankton.* In: *Limnological Analyses*, pp. 147–174, 2000. Therefore, were the statistical analyses performed using biomass values? If so, the figure captions should be revised, as they refer to biovolume instead of biomass.

In addition, the figure captions are not sufficiently clear to facilitate interpretation of the figures.

I am also not convinced that the dataset is sufficient to fully support the objectives and conclusions presented in the manuscript.

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Furthermore, caution is needed when discussing cyanotoxins. The analyses presented do not include species-level identification of cyanobacteria, and it is well established that not all cyanobacterial species are potentially toxin-producing. Therefore, statements regarding toxin occurrence or production should be made more carefully.

Finally, explanations based on abiotic parameters are not strongly supported, since the study did not include an environmental characterization of the ecosystems. As a result, attributing the observed patterns to abiotic drivers remains speculative.

Declarations

Potential competing interests: No potential competing interests to declare.