

Flow cytometric observation of picophytoplankton community structure in the cascade reservoirs along the Wujiang River, SW China

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ABSTRACT

Picophytoplankton community structure has been seasonally investigated in the cascade reservoirs along the Wujiang River from April 2006 to January 2007. Besides picoeukaryotes, two groups of picocyanobacteria have also been detected by flow cytometry. One is a phycoerythrin-rich picocyanobacteria (PE-rich Pcy), the other is a red-fluorescing cells with lacking orange fluorescence and could be a phycocyanin-rich picocyanobacteria (PC-rich Pcy). The average abundances of PC-rich Pcy, PE-rich Pcy and picoeukaryotes were 10^3 , 10^4 and 10^2 cells mL^{-1} , respectively. PE-rich Pcy was the dominant population but showed a reduction with eutrophication, and therefore the community structure of picophytoplankton transformed from dominant PE-rich Pcy to dominant PE-rich Pcy and PC-rich Pcy, which suggested they are excellent indicators for the change of trophic state. Picophytoplankton community structure also presented a seasonal variation, indicating the different response of each picophytoplankton group to water temperature.

Key words: phycoerythrin-rich picocyanobacteria, phycocyanin-rich picocyanobacteria, picoeukaryotes
