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CORRELATION OF MICROCYSTINS AND WATER ENVIRONMENT FACTORS IN MIYUN RESERVOIR OF BEIJING, CHINA

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Abstract

Our investigation in 2007 revealed that the concentration of microcystin (MC-LR) in Miyun reservoir was $0.224 \mu\text{g L}^{-1}$, below the safety limit of surface drinking water in China ($1.0 \mu\text{g L}^{-1}$). The phytoplankton community in Miyun reservoir was composed of 8 divisions and 84 species (including genera and varieties). The density of phytoplankton was $393.71 \times 10^4 \text{ cells L}^{-1}$ including 24.6% of Chlorophyta, 32.5% of Cyanophyta and 15.3% of Bacillariophyta. The toxin-producing cyanobacteria included *Microcystis* sp., *Oscillatoria* sp. and *Anabaenopsis* sp. The MC-LR content was positively correlated with the toxic cyanobacterial density. Total phosphorus (TP), total nitrogen (TN), transparency (SD), COD_{Mn} had reached the level of mesotrophy. Nitrogen source and organic pollution had been on the rise. Correlation analysis and cluster analysis showed that $\text{NH}_4\text{-N}$, TP, $\text{NO}_3\text{-N}$ and TN might affect the biosynthesis of MC-LR directly. Therefore, preventing and controlling water eutrophication is the key to maintain water supply safety in Miyun reservoir.

Key words: Miyun reservoir; microcystin; physicochemical index; phytoplankton

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