Early warning of MIB episode based on gene abundance and expression in drinking water reservoirs

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# Supplementarty Material

Figures and/or tables are provided below as the supplemenatary evidences to the main text.

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| Fig. 1 Map and sampling sites of QCS Reservoir |

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| Fig. 2 Bathymetry of QCS Reservoir |

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| Fig. 3 Standard curve of *mic* gene quantification. The correlation between *mic* gene and Cq was: |

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| Fig. 4 Amplification curves of *mic* qPCR |

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| Fig. 5 Dynamics of water temperature and light irradiance during the MIB episode in QCS Reservoir in 2021 |

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| Fig. 6 Dynamics of phytoplankton communities in QCS Reservoir in 2021 |

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| Fig. 7 Correlation between MIB concentration and *Pseudanabaena* cell density |

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| Fig. 8 Images of isolated *Pseudanabaena* strains (A: *P. cinerea*; B: *P. limnetica*; C: *P. catenate*) |

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| Fig. 9 Correlation between DNA or RNA abundance of *mic* gene and water temperature (A, B), TN (C, D), and TP (E, F), respectively, in QC10 during the MIB episode |

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| Fig. 10 The mean light intentisy of the underwater column in QCS Reservoir during the MIB episode in 2021 |

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| Fig. 11 Temperature dynamics in QCS Reservoir |

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| Fig. 12 Dynamics of MIB concentration and DNA abundance of *mic* gene in JZ Reservoir (A) and LH Reservoir (B), respectively. |

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| Table 1 Distribution of sampling sites in 4 regions of QCS Reservoir   | Sampling sites | Regions | | --- | --- | | QC05 | Upstream river water (URW) | | QC17, QC12, QC10 | North branch (NB) | | QC14, QC15, QC23, QC11 | South branch (SB) | | QC18,QC22,QC25,QC09,QC08,QC19, | Middle section (MS) | | QC20,QC02,QC07,QC06,QC01 |  | |

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| Table 2 Three stains of *Pseudanabaena* isolated from QCS Reservoir. Taxonomic classification was identified by 16S rRNA gene sequencing and blasted with NCBI database   | Isolation ID | Identification | Similarity | MIB | Accession number | | --- | --- | --- | --- | --- | | 1 | *P. cinerea* | 1.0000 | + | ON571433 | | 2 | *P. limnetica* | 0.9986 | - | ON553403 | | 3 | *P. catenate* | 0.9961 | - | ON571434 | |