

## **Morphological characteristics and phylogenetic analyses of unusual morphospecies of *Microcystis novacekii* forming bloom in the Cheffia Dam (Algeria)**

Soumaya EL HERRY<sup>1)\*</sup>, Hichem NASRI<sup>1,3)</sup> and Noureddine BOUAÏCHA<sup>1,2)</sup>

<sup>1)</sup>Laboratoire Santé Publique-Environnement, 5, Rue J.B. Clément, Université Paris-Sud 11, UFR de Pharmacie, 92296 Châtenay-Malabry, France

<sup>2)</sup>Actuel Address: Laboratoire Ecologie, Systématique et Evolution, UMR 8079, Université Paris-Sud 11, Bâtiment 362, 91405 Orsay Cedex, France

<sup>3)</sup>Institut de Biologie, Centre Universitaire d'El Taref, Algeria

\*e-mail corresponding author: soumaya.herry@laposte.net

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### **ABSTRACT**

*The toxicological potential and morphological characteristics and phylogenetic analysis based on the 16S rDNA sequence and the 16S-23S rDNA internal transcribed spacer (ITS) were investigated in unusual morphospecies of Microcystis (MCYS-CH01) isolated from the Cheffia Dam in Algeria. The presence of microcystin synthetase genes (mcyA, -B, and -C) in isolated colonies of this morphospecies, and the fact that serine/threonine phosphatase (PP2A) was inhibited by its crude extract indicated that this morphospecies was microcystin-producer. The morphological features of this unusual morphospecies were very different from any of those described in the literature of all known species of Microcystis. The phylogenetic tree based on 16S rDNA sequences shows that this morphospecies is indistinguishable from the reference strain Microcystis aeruginosa PCC 7806 and from many other known Microcystis species and, therefore, this tree did not necessarily correlate to the distinctions between morphospecies. However, phylogenetic analysis based on the 16S-23S rRNA spacer region could be an effective way to assign this unusual morphospecies MCYS-CH01 to the Asian species Microcystis novacekii. Comparison of the ITS sequence of this morphospecies with sequences available in the GenBank database showed that some highly conserved genotypes are found throughout the world.*

*Key words: Cyanobacteria, 16S rRNA, ITS, Microcystins*

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