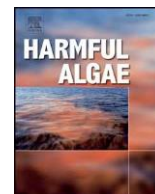




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A Greek *Cylindrospermopsis raciborskii* strain: Missing link in tropic invader's phylogeography tale

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ABSTRACT

The cyanobacterium *Cylindrospermopsis raciborskii* represents a challenge for researchers and it is extensively studied for its toxicity and invasive behaviour, which is presumably enhanced by global warming. Biogeography studies indicate a tropical origin for this species, with Greece considered as the expansion route of *C. raciborskii* in Europe. The widening of its geographic distribution and the isolation of strains showing high optimum growth temperature underline its ecological heterogeneity, suggesting the existence of different ecotypes. The dominance of species like *C. raciborskii* along with their ecotoxicology and potential human risk related problems, render the establishment of a clear phylogeography model essential. In the context of the present study, the characterization of *Cylindrospermopsis raciborskii* TAU-MAC 1414 strain, isolated from Lake Karla, with respect to its phylogeography and toxic potential, is attempted. Our research provides new insights on the origin of *C. raciborskii* in the Mediterranean region; *C. raciborskii* expanded in Mediterranean from North America, whilst the rest of the European strains may originate from Asia and Australia. Microcystin synthetase genes, phylogenetic closely related with *Microcystis* strains, were also present in *C. raciborskii* TAU-MAC 1414. We were unable to unambiguously confirm the presence of MC-LR, using LC-MS/MS. Our results are shedding light on the expansion and distribution of *C. raciborskii*, whilst they pose further questions on the toxic capacity of this species.

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