

Molecular screening of some selected water bodies in Sri Lanka for Microcystis producing genotypes

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Dry zone reservoirs in Sri Lanka are presently characterized by blooms of cyanobacteria and temporal appearance of cyanotoxins. Selected dry zone fresh water bodies in Sri Lanka were screened for the presence of cyanobacterial genotypes which could produce Microcystis (MC) using Polymerase Chain Reaction (PCR). Ten dry zone water bodies were selected namely, Kurunegala lake, Giradurukotte reservoir, Rathkinda lake, Ulhitiya lake, Kondawatuwana reservoir, Jayanthi lake, Hot water spring 1 (HWS 1), Hot water spring 2 (HWS 2), Kantale lake and Unnichchi reservoir. According to morphological identification, *Microcystis* spp. was the dominant cyanobacteria in all reservoirs except in HWS 1 and HWS 2, where the *Oscillatoria* spp. was dominant. Total MC content in raw water ranged from 0.00 ppb to 3.98 ppb respect to the Enzyme Linked Immuno Sorbent Assay (ELISA). Rathkinda lake, HWS 1 and HWS 2 reflected absence of MCs while the highest value was recorded in Jayanthiwewa (3.98 ppb). PCR was carried out to amplify *mcy E* gene (230-250 bp), a gene involved in MC biosynthesis. Presence of MC producing genotypes was proven by positive PCR bands for the reservoirs with MCs. Even though MCs were not detected in HWS 1 and HWS 2 by ELISA, PCR reflected the presence of MC producing genotype. Absence of MCs in Rathkinda lake was proven by the negative results for PCR. Hence it can be concluded that, molecular screening could reflect the actual ability of MC production even when the toxin is not detected by ELISA at a given moment.

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