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Microcystis, Microcystin-LR, nitrate and phosphate levels of some selected drinking, irrigation and aesthetic water bodies in Sri Lanka.

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A Number of cyanobacteria has become widely recognized as toxin producers. Among them *Microcystis*, *Anabaena*, *Cylindrospermopsis*, *Lynbya*, *Nosotc*, *Nodulaira* and *Oscillatoria* have been recognized as most important and commonly available toxic cyanobacteria in freshwater. *Microcystis* is known to be the most common bloom forming cyanobacteria which produce microcystins. Present study was focused on the detection of microcystin-LR contamination level along with the occurrence of toxic producing cyanobacteria species and concentrations of major limiting nutrient for algae. Thirteen water bodies belonging to different user categories were sampled. Biomass of *Microcystis*, microcystin-LR in relation to phosphorous and nitrogen concentrations were studied for a period of one year from April 2009 to April 2010. Five samples from each water bodies in triplicate were collected and enumeration was done following natural sedimentation with acidified Lugol's solution. Screening of Microcystin-LR was done at the site itself using immunostrips. The nitrate concentration of all water bodies were $<0.1 \text{ mg l}^{-1}$ and the levels were within the drinking water standard given by SLS. The phosphorous concentration in Labugama and Kalatuwawa were $<0.1 \text{ mg l}^{-1}$ and Boralesgamuwa and Kesbewa lakes were 0.1 mg l^{-1} respectively. The phosphorous concentration of Parakramasamudra, Minneriya wewa, Neelapola and Kantale reservoirs were within the range between 0.4 and 0.6 mg l^{-1} and in Kondawatuwana was 1.5 mg l^{-1} . In contrast, phosphate concentration of waters in Tissa wewa, Nuwara wewa, Kattakaduwwa wewa and Ranna reservoir showed greater than 2 mg l^{-1} . Greater than 10 mg l^{-1} microcystin-LR was detected only from Kondawatuwana, Boralesgamuwa and Kattakaduwwa reservoirs. The lowest *Microcystis* bio mass ($0.48 \text{ C.pg.cell}^{-1}$) was recorded in Labugama reservoir while the highest was from Boralesgamuwa lake ($143.9 \text{ C.pg.cell}^{-1}$). The *Microcystis* biomass in Kondawatuwana and Kattakaduwwa tank were 26.5 and $10.5 \text{ C.pg.cell}^{-1}$ respectively. Though, the high biomass of *M.aeruginosa* showed in Nuwara wewa and Tissa wewa, MC-LR was not at detectable levels. Thus, the findings of the present study indicate that the nutritional conditions favour the growth of *M. aeruginosa* in irrigation water bodies and the MC-LR toxicity is not dependent on the *M.aeruginosa* bio mass.