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CONTAMINATION OF MC-LR IN THILAPIA (Oreochromis niloticus) COLLECTED FROM SELECTED RESERVOIRS IN ANURADHAPURA DISTRICT

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Microcystin-LR (MC-LR) is a cyanotoxin derived from some cyanobacteria and it can be accumulated in aquatic organisms. MC-LR accumulation in tilapia (*Oreochromis niloticus*) collected from three reservoirs, Nallachchiya Wewa, Galkulama Wewa and Anakattiya Wewa, in Anuradhapura District was studied to evaluate the risk posed by the MC-LR in fish on human health. Thilapia is the most famous fresh water fish consumed by people as animal protein source in Sri Lanka. Sample collection, transportation and analysis were according to the standard protocols and MC-LR was quantified by High Performance Liquid Chromatography (HPLC). Fish skin, flesh and head were analyzed for MC-LR and Tolerable Daily Intake (TDI) values were calculated following WHO guidelines. The standard lengths of fish were ranged between 16.7 ± 0.34 cm – 22.5 ± 0.62 cm. The mean concentration of MC-LR in skin, flesh and head were recorded as 5.12 ± 0.02 ppm, 2.33 ± 0.01 ppm and 14.41 ± 0.57 ppm respectively in samples collected from Nallachchiya Wewa. In Galkulama Wewa level of MC-LR in skin, flesh and head were 4.09 ± 0.01 ppm, 4.35 ± 0.21 ppm, 14.13 ± 0.43 ppm where as in Anakattiya Wewa, level of MC-LR in skin, flesh and head and 7.53 ± 0.06 ppm, 2.57 ± 0.01 ppm, 14.11 ± 0.81 ppm respectively. TDI of MC-LR in fish skin and head in Nallachchiya Wewa was 0.27 ± 0.04 µg/day/person and 0.19 ± 0.02 µg/day/person where in Galkulama Wewa 0.18 ± 0.03µg/day/person and 0.11 ± 0.01 µg/day/person respectively. These values were exceeded WHO recommended TDI value. However, the TDI values in flesh for both reservoirs were 0.03 ± 0.01 µg/day/person and the value was below the WHO value. In Anakattiya Wewa, TDI in fish skin and head were recorded 0.53 ± 0.04 µg/day/person and 0.2 ± 0.02 µg/day/person. These values were exceeded the TDI value given by WHO. TDI in fish flesh samples in the tested water bodies was 0.04±0.01 µg/day/person and the value was equal to the WHO value. The results of the study revealed that consumption of head and skin part of fish has a potent risk on accumulation of MC- LR. Thus, it can be recommended to remove head part and skin prior to consumption, and awareness is needed to minimize the potent risk of accumulations of MC-LR in human body.

Keywords: *MC-LR, Thilapiya, TDI, Anuradhapura District*