DEVELOPMENT OF AN IMMUNOASSAY FOR THE DETECTION OF MICROCYSTIN-LR IN DRINKING WATER

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Contamination of drinking water by cyanobacterial toxins is a concern for public health and water authorities throughout the world. Microcystin (MC) is an especially hazardous cyanotoxin in freshwaters, because of its tumor promoting effects. These compounds are well known cyclic heptapeptide hepatotoxins produced by several genera of cyanobacteria and more than 70 structural variations have been characterized from natural bloom. Therefore, the development of a sensitive immunoassay for screening purpose to detect MC is essential. We described here an immunoassay for the detection of MC-LR in drinking water. MC-LR was conjugated with Polystyrene Sulphate (PSS), Bovine Serum Albumin (BSA) and cationized BSA (cBSA), where mice (BALB/c) were immunized with 0.3 μg MC-LR-PLL/mouse, 0.3 μg MC-LR-BSA/mouse and 21.6 μg MC-LR-cBSA/mouse. Serum was taken after the fourth injection from the plexus retroorbitalis and binding kinetics was used to follow antibodies production. The specificity of antibodies against the MC-LR was assayed by competitive enzyme immunoassay method. The absorbance obtained from different conjugations with PLL, BSA and cBSA were 0.016, 0.248, 2.078, respectively. The sera of mice immunized with MCLR-cBSA showed significant affinities to MC-LR and therefore it was chosen for hybridoma cell production.

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