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Accumulation and depuration of microcystins by the freshwater clam *Corbicula leana* under laboratory conditions

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A ccumulation and depuration of hepatotoxins produced by freshwater cyanobacterium *Microcystis aeruginosa* in the edible mussel *Corbicula leana* was investigated. Mussels were exposed to a toxic cyanobacterium that produces microcystins, for 18 days. After that period, animals were placed in toxin free water and were fed with non-toxic *Microcystis* in the following 21 days for depuration experiment. A supplemental feeding experiment was conducted for 6 h to determine the clearance rate (CR) of the mussel on toxic, non-toxic *Microcystis* and green algae *Desmodesmus*. HPLC was used to monitor the concentration of toxins in mussels. No mussel mortality was recorded during the course of the experiment. The free toxin in mussels accumulated rapidly after 3 days of the uptake experiment. Detoxification may occur at day-9 with slightly decreased MCs in the mussel. Maximum detectable level of free MCs was 13 μ g g⁻¹ DW at day-18 of the experiment. In the depuration period, more than 80 percent of MCs was detectable after day 33. The CR of the mussel was not significant difference between the nontoxic *Microcystis* and the toxic one, whereas significantly difference between the two cyanobacteria and the green algae was observed. The estimated MCs concentrations in the mussels were far beyond the WHO's provisional tolerable daily intake (0.04 μ g kg⁻¹ day⁻¹), suggesting the high risk for human when consuming mussels during cyanobacterial bloom.

Biography

Thanh-Luu Pham received his M.Sc. degree from the Ho Chi Minh City University of Technology, Vietnam and is currently working toward his Ph.D. degree at the Aquatic Eco-Engineering Lab, University of Tsukuba, Japan. His Ph.D. thesis research focuses on influence of cyanobacterial hepatotoxins in aquatic animals, and covers several aspects including distribution, bioaccumulation and biochemical responses of freshwater mussels exposed with cyanobacterial toxins.

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