

Photocatalytic Oxidation of Microcystin-LR in a Fluidized Bed Reactor Having TiO₂-coated Activated Carbon

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TiO₂-coated granular activated carbon was employed for the removal of toxic microcystin-LR from water. High surface area of the activated carbon provided sites for the adsorption of microcystin-LR, and the adsorbed microcystin-LR migrated continuously onto the surface of TiO₂ particles which located mainly at the exterior surface in the vicinity of the entrances of the macropores of the activated carbon. The migrated microcystin-LR was finally degraded into nontoxic products and CO₂ very quickly. These combined roles of the activated carbon and TiO₂ showed a synergistic effect on the efficient degradation of toxic microcystin-LR. A continuous flow fluidized bed reactor with the TiO₂-coated activated carbon could successfully be employed for the efficient photocatalytic of microcystin-LR.