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RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: The Dangers of Microcystins in Aquatic Systems and Progress of Research into Their Detection and Elimination

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Abstract: Microcystins (MC) are secondary metabolites of toxic cyanobacteria. The algae and metabolites often combine to cause strong discoloration of the water, accumulation at the surface in discrete scums and sometimes emit a strong odor (Figure 1, Figure 2A, Cai *et al.* 1997, Liang *et al.* 2001, Zurawell *et al.* 2005). MC belong to a family of extremely toxic compounds and are a health hazard to aquatic animals and even humans (Ding *et al.* 1998, 1999, Falconer 1991, Hernandez *et al.*, 2000, Lawton *et al.* 1994). Researchers have identified blooms of cyanobacteria from eutrophic freshwater bodies in many parts of the world, and their occurrence can create a major water quality problem. For example, massive fish kills occasionally have been related to severe cyanobacterial blooms. Chronic damages, such as development of liver tumors may arise from long-term exposure to low concentrations of MC (Chen *et al.* 2006, Ding *et al.* 1998, 1999, Ibelings and Chorus 2007, Lankoff *et al.* 2004, Li *et al.* 2007, Shen *et al.* 2003, Smith and Haney 2006, Zimba *et al.* 2006).

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