

Fatty acid amides are responsible for the toxicity of the harmful alga *Prymnesium parvum*

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The golden alga *Prymnesium parvum* has been implicated in fish and aquatic animal kills globally for over a century. In addition to widespread ecological impacts through the loss of entire fish populations within lakes, an economic burden is also felt by state and local agencies due to year class losses of fish raised for stocking lakes as well as loss of fishing and recreational use of the affected water. Multiple compounds have been implicated in *P. parvum* toxicity, but the unequivocal identification and characterization of all *P. parvum* toxins remained to be accomplished.

Examining both cultured *P. parvum* cells and biomass from wild blooms, we have identified 8 fatty acid amides that display hemolytic activity, cytotoxicity to both mammalian and fish cells, and ichthyotoxicity. These compounds accumulate to lethal levels in the environment, show at least additive toxicity in chemical mixtures, and show increased toxicity when divalent cations are present and pH is increased. This demonstrates that multiple abiotic factors (typical of those found at *P. parvum* blooms) can affect the toxicity of fatty acid amides after they are released.

Biography

Matthew J. Bertin is a Ph.D. candidate in the Marine Biomedicine and Environmental Sciences Program at the Medical University of South Carolina. He holds a Master of Science degree from Florida State University in Biological Science.

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