

Isolation and determination of structure and biological activity of a novel toxin produced by the dinoflagellate, *Alexandrium monilata*

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Abstract.

The chain-forming dinoflagellate *Alexandrium monilata* was first reported on the east coast of Florida in 1951, but has been known to cause problems for over 100 years. Later observations in 1955 on the Gulf coast of Texas identified the formation of red colored water and elevated fish mortality. Past studies have found that *A. monilata* produces a harmful substance(s) that is predominantly contained in the cell mass and increases toxicity when the organism cytolyses. This presentation describes current studies that is underway regarding structure and nature of the toxin. Our studies corroborate with other research demonstrating that the toxin has low water solubility, casting doubt on the presence of saxitoxin-like toxins that are water soluble. *A. monilata* toxin appears to be a novel toxic substance of uncharacterized mode/site of action, which is most efficiently extracted with organic solvents. Using techniques of preparative TLC coupled to GH4C1 high throughput bioassays, we have identified cytotoxic activity. We are currently in the process of determining the structure of this novel toxin through the use of preparative TLC, preparative LC-MS, NMR and Mass Spectrometry. We present here the spectral data to date on this novel bioactive material.