

**Taxa-specific effects of polyunsaturated aldehydes in micro- and meso- zooplankton alter food web dynamics.**

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The effects of polyunsaturated aldehydes (PUA) on copepods have been widely reported, with reproductive success decreased in the presence of diatoms that produce these compounds. However the allelopathic effect of PUA on microzooplankton is less well understood. We conducted a series of incubation experiments with natural seawater spiked with either diatoms that produce PUA, diatoms that do not produce PUA, or concentrated PUA. Our goal was to determine the food web impacts of PUA on food web structure and trophic efficiency for microzooplankton and copepods. We found taxa-specific responses of microzooplankton to the addition of PUA containing diatoms and PUA compounds in a series of incubation experiments, although no impact was observed for bulk estimates phytoplankton or microzooplankton growth between different treatments. Our preliminary results suggest that diatom-produced PUA may be a defense mechanism primarily targeting microzooplankton and not copepods and other planktonic metazoans. The taxa specific responses within the microzooplankton induced cascading effects in the planktonic food web, with the potential to greatly alter their structure. This altered structure may have great implications for carbon cycling in ecosystems where PUA producing diatoms bloom.

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