



Pectenotoxin-2 and dinophysistoxin-1 in suspended and sedimenting organic matter in the Baltic Sea

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ABSTRACT: *Dinophysis acuminata*, *D. norvegica*, and *D. rotundata* occur regularly in the Baltic Sea summer plankton. They are known to produce diarrhetic shellfish poisoning (DSP) toxins in coastal areas worldwide, but so far, evidence from the Baltic Sea is scarce, and the fate and transfer of their toxins in the ecosystem is poorly known. Occurrence of *Dinophysis* and DSP toxins was studied on the southwest coast of Finland in late July-September 2004 by sampling the water column down to the thermocline. DSP toxin profiles were analyzed using high performance liquid chromatography-mass spectrometry from the thermocline sample from material collected with a sediment trap. Maximum abundances of *D. acuminata* (7,280 cells L⁻¹) and *D. rotundata* (880 cells L⁻¹) were above the thermocline, but *D. norvegica* (maximum 200 cells L⁻¹) was most abundant in the thermocline region. Pectenotoxin-2 (PTX-2) was found during the entire study period. Cellular PTX-2 content in *Dinophysis* varied between 1.6 and 19.9 pg PTX-2 cell⁻¹. Dinophysistoxin-1 (DTX-1) was found in samples after mid-August in concentrations ranging from 0.2 to 149 pg DTX-1 cell⁻¹. PTX-2 and DTX-1 were found in all sediment trap samples. The estimated sedimentation rate of PTX-2 was 0 to 15.4 ng m⁻² d⁻¹ and DTX-1 0 to 190 ng m⁻² d⁻¹, corresponding ~0.01% of PTX-2 and 1% of DTX-1 of the integrated water column DSP pool during a 6-week period. Sedimenting organic matter did not contain intact *Dinophysis* cells, but copepod fecal pellets found in the sediment traps indicated that fecal pellets are the major pathway of DSP toxins to the bottom. The major fraction of the PTX-2 and DTX-1 was either decomposed in the water column or transferred to higher trophic levels in the planktonic food chain.

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