



Special Issue Reprint

## **Dinophysis Toxins**

**Distribution, Fate in Shellfish and Impacts**

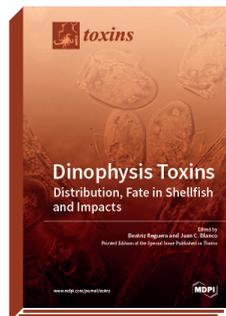
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Several species of *Dinophysis* produce pectenotoxins (PTXs) and/or the diarrhetic shellfish toxins okadaic acid (OA) and dinophysistoxins (DTXs). DSP toxins are inhibitors of protein phosphatases and may cause gastrointestinal intoxication upon ingestion of contaminated seafood. Forty years after the identification of *Dinophysis* as the causative agent of DSP in Japan, the contamination of shellfish exposed to *Dinophysis* blooms is recognized as a worldwide problem affecting public health and the shellfish industry. Costly monitoring programmes are implemented in regions with relevant shellfish production to prevent these socioeconomic impacts. Harvest closures are enforced whenever toxin levels exceed regulatory limits (RL).

*Dinophysis* species feed on ciliates (*Mesodinium* genus) that previously acquired plastids from cryptophycean nanoflagellates. The interactions of *Dinophysis* with different prey regulate their growth and toxin production. Toxins from *Dinophysis* ingested by shellfish are partially biotransformed and bioaccumulated, rendering shellfish unsuitable for human consumption. DSP toxins may also affect shellfish metabolism. This book covers diverse aspects of the topics mentioned above, from *Dinophysis* cultures and the kinetics of uptake, transformation, and depuration of DSP toxins in shellfish, to *Dinophysis* population dynamics, monitoring and regulation of DSP toxins, and their impact on the shellfish industry in the most affected aquaculture regions in the world.



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