

A Comprehensive Non-Targeted Screening of Halogenated Organic Compounds in Dolphins from Brazil

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ABSTRACT

Typical environmental monitoring for persistent organic pollutants (POPs) reveals contamination by chemicals that are known in advance (e.g. PCBs, DDTs, chlordanes, PBDEs that are “routinely monitored”), but excludes new and unknown compounds that can bioaccumulate¹. The lack of knowledge about compounds that exist in the environment and which are not included in monitoring studies includes a range of halogenated organic compounds (HOCs) that may cause potential impacts on human health and wildlife. For many POPs, the original compound no longer plays the dominant role in the environment and their transformation products can become as or even more problematic. Naturally-produced can also bioaccumulate, as is found in cetaceans where they have been reported at similar and/or in some cases higher tissue concentrations compared to POPs targeted in monitoring. Cetaceans have long been used as sentinel species for assessment of contamination by POPs. The bottlenose dolphin (*Tursiops truncatus*) is a cosmopolitan species, distributed worldwide and has site fidelity in coastal regions. Due to its life history and presence in waters near densely populated areas, it is an excellent sentinel for the study of oceans and human health⁵. A number of recent studies have suggested endocrine disruption, neurotoxicity, immunosuppression and reproductive toxicity associated with HOCs in mammals⁶. The aim of this study was to identify and catalog bioaccumulative HOCs (both anthropogenic and natural) in *T. truncatus* stranded or incidentally caught along the Brazilian coast using a non-targeted analytical approach.

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