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TITLE: Contrasted accumulation patterns of persistent organic pollutants and mercury in sympatric tropical dolphins from the south-western Indian Ocean

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ABSTRACT:

Due to their high trophic position and long life span, small cetaceans are considered as suitable bioindicators to monitor the presence of contaminants in marine ecosystems. Here, we document the contamination with persistent organic pollutants (POPs) and total mercury (T-Hg) of spinner (*Stenella longirostris*, n =21) and Indo-Pacific bottlenose dolphins (*Tursiops aduncus*, n=32) sampled from the coastal waters of La R  union (south-western Indian Ocean). In addition, seven co-occurring teleost fish species were sampled and analyzed as well. Blubber samples from living dolphins and muscle from teleosts were analyzed for polychlorinated biphenyls (PCBs), DDT and metabolites (DDTs), chlordanes (CHLs), hexachlorocyclohexanes (HCHs), hexachlorobenzene (HCB), and polybrominated diphenyl ethers (PBDEs). Methoxylated PBDEs (MeO-PBDEs), reported as having a natural origin, were also analyzed. T-Hg levels were measured in blubber and skin biopsies of the two dolphin species. Stable isotopes  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values were determined in skin of the dolphins and in the muscle of teleosts. For PCBs, HCHs and T-Hg, concentrations were significantly higher in *T. aduncus* than in *S. longirostris*. For other POP levels, intra-species variability was high. MeO-PBDEs were the dominant compounds (55% of the total POPs) in *S. longirostris*, while PCBs dominated (50% contribution) in *T. aduncus*. Other contaminants showed similar profiles between the two species. Given the different patterns of POPs and T-Hg contamination and the  $\delta^{15}\text{N}$  values observed among analyzed teleosts, dietary and foraging habitat preferences most likely explain the contrasted contaminant profiles observed in the two dolphin species. Levels of each class of contaminants were significantly higher in males than females. Despite their spatial and temporal overlap in the waters of La R  union, *S. longirostris* and *T. aduncus* are differently exposed to contaminant accumulation.

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