

SMALL GRANT IN AID OF RESEARCH – 2015

Persistent organic pollutants (POPs) in bottlenose dolphins (*Tursiops truncatus*) from two resident populations of southern Brazil: Assessing exposure levels, potential contamination and immune biomarkers

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ANNUAL SUMMARY REPORT

This study aims to measure POPs (Pesticides, PCBs and PBDEs) burden, and its correlation to biochemical and molecular biomarkers in bottlenose dolphins from two resident populations in southern Brazil (Laguna estuary/SC-LN and Lagoa dos Patos estuary/RS-LP). This grant was used for acquiring chemical patterns for chemical analysis, funding fuel for sampling efforts and acquiring primers for molecular analysis. Preliminary results indicate higher levels of DDTs in LN (5,304.04±6,059.71) than in LP (2,227.82±1,905.06), which presented higher levels of PCBs (LP - 21,560.15±16,513.08; LN - 10,0992.17±8,925.19), comparable to those found in industrialized regions, such as Spain and Japan. The most frequent PCBs were Hexachlorobiphenyls, followed by hepta and pentachlorobiphenyls. PBDEs were found in low concentrations, and were similar between areas (LN - 227.97±221.60 and LP - 277.44±214.59). Mirex (LN - 184.35±89.72; LP - 308.27±185.17) and HCB (LN - 69.84±63.72; LP - 40.37±8.92) were found in concentrations comparable to results from studies carried out in impacted areas of the US and Brazil. Heptachlor and HCHs were found in some individuals, but levels were low (range: 12.07 to 135 and 12.21 to 233.06, respectively). All POPs concentrations are expressed in ng. g lipid⁻¹. In general, POPs concentrations can be considered low when compared to extreme values such as those found in the Mediterranean Sea. Next steps for this project include sex determination and analysis of biochemical and molecular biomarkers, which can explain the high interindividual variability in body burden and elucidate possible mechanisms associated with deleterious effects described for such chemicals.