PCR-Multiplex identifies sharks landed and fins arrested: a contribution to species conservation

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Due to reduction of the most traditional fish stocks, the consumption of shark meat has become more widespread and appreciated. Furthermore, the high price of their fins in trade to sustain the growing Asian consumption was a great incentive to fish this taxonomic group. Statistical data of FAO (Food and Agriculture Organization of the United Nations) on overfishing show that Brazil is responsible for the capture of about 17,000 ton of elasmobranchs, with 12,000 tons of sharks. However, according to IBAMA, only about 20% of specimens receiving any mention regarding the species, often only the common name that can be linked to more than one biological species, the remainder being classified only as sharks or rays. This problem is even greater due mainly to a common practice in fisheries that is the removal of fins, heads and viscera being landed only the body-carcasses. This practice interferes directly with the morphological identification of individuals hindering the characterization of fish by species. Thus, the statistical fishing of this group is uncertain for many species and nonexistent for many others. For specific identification of individuals landed and fins arrested by IBAMA we used PCR-Multiplex with species-specific primers 9 of the Cytochrome Oxidase I (COI) gene. We analyzed samples from 526 fins arrested declared as *Prionace glauca* and 200 samples from landings in Cananéia-SP, Brazil identified as "caçonete", that correspond to the genus *Rhizoprionodon*. 4 species were identified in arrested: *P. glauca* (n = 353, 62,80%), *Isurus oxyrhinchus* (n = 135, 24,0%), *Alopias superciliosus* (n = 29, 5,2%), *Sphyrna lewini* (n = 9, 1,6%) and only one sample (0.1%) of *Carcharhinus porosus* (this latter being identified by sequencing of the COI gene). The species landed were identified as *R. porosus* (n = 67; 33,50%), *R. lalandii* (n = 125; 62,50%) and *S. lewini* (n = 8, 4,0%). Thus we demonstrate that there can be more species than those declared in both the industrial fleet (from fins arrested) as the artisanal fishery (from landings) and many species may be underestimated in respect of sustainability. The molecular identification of species by PCR-multiplex is a suitable tool for identification of species and therefore contribute to fishery statistical data.

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