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Species and sex of two baleen whales identified from their skin tissues using molecular approach

Molecular taxonomy technique based on phylogenetic reconstruction of mitochondrial DNA (mtDNA) sequences developed by CMFRI was successfully applied to ratify species identity of one beach cast baleen whale, which was in fairly fresh condition and unambiguously identify another one, which had decayed beyond recognition. Genomic DNA was extracted from their skin tissues and the mtDNA PCR products were cycle sequenced and species identity was confirmed using a dedicated portal for cetaceans, *Wit-*

ness for Whales (www.dna-surveillance.auckland.ac.nz) containing sequences from specimens of whales, dolphins and porpoises identified by expert taxonomists and Blast search of NCBI (www.ncbi.nlm.nih.gov/). The sequences were deposited in the GenBank under accession numbers EF057442, EF057443 & EF057444.

One of the whales, measuring about 20 m in total length, was stranded on 17th July 2006 in Kundugal near Mandapam (Gulf Mannar) and was identified as a male blue whale

(*Balaenoptera musculus*) by examining its morphological characters and external genitals. Species identity was confirmed using phylogenetic reconstruction. The other, measuring about 12m in total length was stranded in the same area on 8th August 2006. It was in a decayed condition making it impossible to identify either species or sex using morphological characters. Phylogenetic reconstruction had positively identified this species as Bryde's whale (*Balaenoptera edeni*). Application of PCR-based gender identification method developed by CMFRI determined the sex of *B. edeni* as male and also ratified sex determination of *B. musculus* based on ex-

ternal genitals.

The present work is significant mainly as it proved the usefulness of molecular approach to identify the species accurately and the sex of beach cast/stranded marine mammals even if the examination of the morphological characters and external genitals of the carcass fail to determine their species status and sex. Further, these PCR-based techniques are very useful for species identification and sex determination of biopsy samples taken from the live marine mammals.

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