

DNA FORENSIC CASE STUDY: SPECIES IDENTIFICATION FROM SUSPECTED CROCODILE PENIS

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ABSTRACT

Department of Wildlife and National Parks (PERHILITAN) began developing the capacity on wildlife DNA forensic since 2009 to assist in law enforcement activities. Most of the forensic cases require DNA species identification of animal parts where key morphological characters are missing. Among the cases frequently confiscated are from traditional Chinese medicine (TCM), which often claim to use animal parts such as reproductive organs. Dried crocodile penises, in particular, are believed to have medicinal benefits and are highly demanded in TCM industries since millennia ago. In this case study, we analysed four enforcement cases comprising of 44 exhibits which resemble crocodile penis using the partial cytochrome *b* gene of the mitochondrial DNA. Sequence similarity searches were conducted using both the BLAST search engines of GenBank and also PERHILITAN's MyWILDNA database to identify the species. Out of 44 exhibits, 22 items produced DNA sequences in which three were found to be derived from *Crocodylus porosus* while the remaining was identified as *Bos taurus*, *Bos javanicus*, and *Bos indicus*. This case study showed that most of TCM which claimed to be derived from crocodile penis turned out to be counterfeit products.

Keywords: Wildlife DNA, enforcement, forensic genetics, mitochondrial DNA, cytochrome *b*

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