

Forensic Science in Support of Conservation Efforts — Developments in Genetic Approaches in Taiwan —

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ABSTRACT: To control illegal wildlife-product trade and protect endangered species of animals, unambiguous identification of the animal specimens is vitally important. Genetic approaches were adopted to identify animal species for conservation and to prevent their fraudulent misidentification in Taiwan, especially for samples of animal residues, powders, and processed products. PCR or nested PCR based on the nature of DNA was used for amplification of cyt b, COI, CHD, and D-loop DNA fragments. Sequences of these fragments were compared with those registered in DNA databases and phylogenetic analysis was performed. The established methods were applied in forensic cases for support of conservation efforts and they were proved to be robust. For conservation animal identification, various samples seized by law enforcement agents have been identified by our systems as rhinoceros horns, Indian sawback turtles, shahtoosh, ivories, dolphins, whales, etc. The systems were also successfully used in investigating the illegal trade of commercial turtle shells and the fraudulent misidentification of food contents on product labels in Taiwanese markets. This review summarizes the work conducted in our laboratory and describes the Taiwan experience.

KEY WORDS: CITES, conservation species, cyt b gene, COI gene, CHD gene, D-loop DNA.
