



### B10 Species Identification of *Kachuga tecta* Using the Cytochrome *b* Gene

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After attending this presentation, attendees will learn species identification of *Kachuga tecta* by DNA technique using the cytochrome *b* gene.

This presentation will impact the forensic community and/or humanity by demonstrating how the Cytochrome *b* gene is a valuable genetic marker in the species identification.

A DNA technique has been established for the identification to species level of tortoises. The test works on the shell of the animal, which is frequently used in the illegal production of ornaments and preparation, were used to identify samples from the species *Kachuga tecta*. A total of 100 tortoise shell specimens collected from the National Council of Agriculture, Taiwan, were used in this study. Primer pairs were designed to amplify partial DNA fragments coding for cytochrome *b* within the mitochondrial genome. The DNA data showed that among the 100 samples there were four distinct haplotype DNA sequences, within which there were a total of 90 variable sites. Between haplotypes 1 and 2, there is only 1 nucleotide difference at the nucleotide position 228. Between haplotypes 1 and 3, 64 nucleotide differences were observed; haplotypes 1 and 4, 62 nucleotide differences; and haplotypes 3 and 4, 52 nucleotide differences were observed. All four haplotypes were compared to the DNA sequences held at the GenBank and EMBL databases, the most similar species were *Kachuga tecta* (haplotype 1 and 2), *Morenia ocellata* (haplotype 3) and *Geoclemys hamiltonii* (haplotype 4), and the highest similarity were 99.5%, 99.3%, 89.9% and 99.5% respectively. However as this was only 89.9% homologous of haplotype 3 with *Morenia ocellata*, it would seem that this haplotype shows only limited homology to a similar species registered currently in these databases. The method established by this study is a further method for the identification of samples protected under CITES and will improve the work for the preservation of the endangered species.

***Kachuga Tecta*, Cytochrome *b* Gene, DNA Forensics**