

Detection of two cryptic taxa in *Meristogenys amoropalamus* (Amphibia, Ranidae) through nuclear and mitochondrial DNA analyses

Abstract

We identified three distinct sympatric lineages of frogs among specimens previously considered a single species (*Meristogenys amoropalamus* Matsui), based on 909 bp of mitochondrial DNA (12S rRNA and cytochrome b). To seek evidence of reproductive isolation between these lineages, we first analyzed a 249-bp fragment of the nuclear proopiomelanocortin (POMC) gene and found five haplotypes, of which two were limited to lineage 1 and three belonged to lineages 3 and 4. In a subsequent phylogenetic analysis of a 1313-bp fragment of nuclear POMC, Rag-1, and rhodopsin, lineage 1 was again distinct, while lineages 3 and 4 could not be differentiated. The results of the nuclear gene analyses suggest that lineage 1 is strongly isolated reproductively from lineages 3 and 4, which are not isolated from each other. This conclusion conforms to groupings based on larval morphology. These results indicate that frogs morphologically identified as *M. amoropalamus* should be split into two sympatric species, one of which contains two mitochondrial lineages that have presumably been retained via deep coalescence. Copyright © 2008.