

**Genetic structure and preliminary findings of cryptic diversity of the Malaysian mahseer (*Tor tambroides* Valenciennes: Cyprinidae) inferred from mitochondrial DNA and microsatellite analyses.**

ABSTRACT

This study examines the population genetic structure of *Tor tambroides*, an important freshwater fish species in Malaysia, using fifteen polymorphic microsatellite loci and sequencing of 464 base pairs of the mitochondrial cytochrome c oxidase I (COI) gene. A total of 152 mahseer samples were collected from eight populations throughout the Malaysia river system. Microsatellites results found high levels of intrapopulation variations, but mitochondrial COI results found high levels of interpopulations differentiation. The possible reasons for their discrepancies might be the varying influence of genetic drift on each marker or the small sample sizes used in most of the populations. The Kelantan population showed very low levels of genetic variations using both mitochondrial and microsatellite analyses. Phylogenetic analysis of the COI gene found a unique haplotype (ER8\*), possibly representing a cryptic lineage of *T. douronensis*, from the Endau-Rompin population. Nevertheless, the inclusion of nuclear microsatellite analyses could not fully resolve the genetic identity of haplotype ER8\* in the present study. Overall, the findings showed a serious need for more comprehensive and larger scale samplings, especially in remote river systems, in combination with molecular analyses using multiple markers, in order to discover more cryptic lineages or undescribed “genetic species” of mahseer.

**Keyword:** *Tor tambroides*; Genetic structure; Cryptic diversity; Freshwater fish; Microsatellites.