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Phylogenetic Systematics of the Family Pentacerotidae (Actinopterygii: Order Perciformes)

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Abstract

The osteologic and myologic characteristics of the family Pentacerotidae are described in detail. The family Pentacerotidae is a monophyletic group supported by 11 synapomorphies found in all family members. Of their synapomorphies, two (the second infraorbital and endopterygoid articulate with lateral ethmoid conditions) are considerably rare in percoids and strongly support the monophyly of the family. A comparison of 44 transformation series among all species revealed four equally parsimonious trees, and a strict consensus tree was adopted. On the basis of the inferred phylogenetic relationships of the Pentacerotidae, this family was cladistically classified into two subfamilies and seven genera: Histiopterinae (*Histiopterus*, *Evistias*, *Zanclistius*, *Pentaceropsis*, *Paristiopterus*, and *Parazanclistius*) and Pentacerotinae (*Pentaceros*). The center of origin of pentacerotids was inferred to be the Southern Australian region. I propose that the two families, Ostracoberycidae and Chaetodontidae, are closely related with Pentacerotidae.

Key words: Phylogeny, Pentacerotidae, monophyly, cladistic classification, zoogeography