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A new barbeled goby from south China (Teleostei: Gobiidae)

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Abstract

A new goby species *Tridentiger radiatus* **sp. nov.** is described from Zhuhai, Guangdong Province of China. The new species, found in sympatry with a widely distributed barbeled congener *Tridentiger barbatus* (Günther, 1861), is one of the only two *Tridentiger* species known to possess mandibular and cheek barbels. *Tridentiger radiatus* is diagnosed by having higher longitudinal and transverse scale counts, less developed barbels, unmottled colouration compared to *T. barbatus*, and 3 dusky radiating infraorbital bands. Partial 12s rDNA sequence data obtained from 5 individuals of *T. radiatus* and 2 individuals of *T. barbatus*, together with published sequence data of other congeners confirmed validity of the new species. The divergence between *T. radiatus* and *T. barbatus* well exceeds the divergence of other sister taxa in the same genus. Monophyly of the two barbeled species is supported.

Key words: *Tridentiger radiatus*, new species, mitochondrial DNA, molecular phylogeny, bony fish

Introduction

The gobiids (Teleostei, Gobiidae), with some 1800 species distributed throughout tropical and temperate waters worldwide, comprise the largest marine fish family (Nelson 1994; Wang *et al.* 2001). Species in the genus *Tridentiger* Gill are small (standard length typically below 10cm) brackish-water dwellers widely distributed in nearshore waters of Korea, Japan and China. Whenever present, they tend to be highly adapted to local environments and thus usually become locally dominant (Mukai *et al.* 1997). Some species have also been reported to be invasive in nearshore waters of North America (Matern & Brown 2005), the Mediterranean (Goren *et al.* 2009) and Australia (Lockett & Gomon 2001). As the generic name implies, members of *Tridentiger* share the synapomorphy of tricuspid teeth in the outermost row on both the upper and lower jaws. The genus is currently placed in the subfamily Gobionellinae (Akihito *et al.* 2000; Pezold 2011; Thacker 2009), diagnosed by two unfused interorbital sensory pores (Pezold 1993). Currently, seven nominal species are recognized (Mukai *et al.* 1997) following the merger of *Triaenopogon barbatus* (Günther) with *Tridentiger* to conform to the diagnosis of the latter genus (Katsuyama *et al.* 1972).

To date, little molecular phylogenetic or population genetic work has been conducted for *Tridentiger*. Phylogenetic studies using *cytb* DNA and allozyme polymorphisms involving all seven recognized species have been reported (Mukai *et al.* 1997; Mukai *et al.* 1996). Cytonuclear conflict between the two resulting topologies deduced by *cytb* and allozyme data suggests possible introgression (but see Schumer *et al.* 2012) or incomplete lineage sorting between *Tridentiger obscurus* (Temminck & Schlegel) and *Tridentiger brevispinis* Katsuyama, Arai & Nakamura.

During our survey of the gobiid fauna on the coast of Zhuhai, Guangdong, China in 2005, we collected *Tridentiger* specimens resembling *T. barbatus* that also possess facial barbels. They were subsequently identified and described herein as a new species. We confirm the validity of the new species and present preliminary results of its phylogenetic relationships with other *Tridentiger* species using 12s rRNA sequences.