



Molecular evidence for taxonomic status of the gudgeon genus *Huigobio* Fang, 1938 (Teleostei: Cypriniformes), with a description of a new species from Guangdong Province, South China

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Abstract

The gudgeon cyprinid genus *Huigobio* Fang, 1938 is re-diagnosed. It can be distinguished from all other genera of Armatogobionina Kryzhanovsky, 1947 and the Gobioninae by its uniquely modified lower lip. The lower lip has a small, heart-shaped, longitudinally non-bisected central pad and two lateral lobes expanded as a wing-shaped flap completely covered with papillae. The lobes contact each other posteromedially, but are not completely confluent. *Huigobio exilicauda*, new species, is described from the Zhu-Jiang drainage of Guangdong Province, South China. It differs from *H. chenhsienensis* in caudal-peduncle thickness and interorbital width.

Key words: Taxonomy, *Huigobio*, Validity, New species, South China

Introduction

The gudgeon genus *Huigobio* was established by Fang (1938) for a new species, *H. chenhsienensis*, from streams of Chenhsien (currently Shengzhou City), Chekiang (now Zhejiang) Province, South China. Two species are currently in this genus: *H. chenhsienensis* from coastal river basins in Zhejiang Province, tributaries flowing into the lake Poyang system of the lower Yangtze River (Chang-Jiang in Chinese) basin in Jiangxi Province and the Pearl River (Zhu-Jiang in Chinese) basin in Guangdong, Guangxi and Yunnan provinces; and *H. chinssuensis* (Nichols, 1926) from the Yellow River (Huang-He in Chinese) basin in Shandong and Henan provinces (Zhang *et al.*, 1996; Yue, 1998; Du *et al.*, 2008; Huang & Wu, 2010). They are small, rheophilic species inhabiting headwaters of the rivers.

Since the original description of *Huigobio*, the majority of workers have regarded it as valid (Mao, 1989; Zheng & Yang, 1989; Pan *et al.*, 1990; Yue, 1998). Its validity was confirmed by Yu & Yue's (1996) generic-level morphological phylogenetic analysis of the "pseudogobiini fishes." Several authors, however, considered *Huigobio* as an invalid genus. Bănărescu (1992) regarded it as a junior synonym of the genus *Microphysogobio* Mori, 1934. This classification was later accepted by Jiang *et al.* (2012), given that *Huigobio chinssuensis* was united with sampled species of *Microphysogobio* in Tang *et al.*'s (2011) molecular phylogenetic analysis of the Gobioninae. The validity of the genus *Huigobio* remains unresolved.

Our ongoing taxonomic work on specimens of the genus *Huigobio* in the collection of the Institute of Hydrobiology, the Chinese Academy of Sciences, Wuhan, P. R. China, has revealed remarkable differences in the soft-tissue structures in the mouth between two species, *H. chenhsienensis* and *H. chinssuensis*, suggesting that they are not congeneric. This hypothesis is also affirmed by our molecular phylogenetic analysis with the addition of *H. chenhsienensis* (the type species of *Huigobio*) to the dataset of the Gobioninae utilized by Tang *et al.* (2011). This implies that *Huigobio* should be recognized as a valid gudgeon genus. Further examination of the specimens previously identified as *H. chenhsienensis* from the Zhu-Jiang basin in Guangdong Province, South China, showed that they in fact represent an undescribed species. The aims of this paper are: (1) present molecular evidence supporting the validity of the gudgeon genus *Huigobio*, and (2) provide a description of this undescribed species.