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A new species of snake eel, *Pisodonophis sangjuensis* (Anguilliformes: Ophichthidae) from Korea

HWAN-SUNG JI & JIN-KOO KIM[1]
Department of Marine Biology, Pukyong National University, 599-1, Daeyeon 3-dong, Nam-gu, Busan, 608-737, Korea.
E-mail: nise9@naver.com
[1]Corresponding author. E-mail : taengko@hanmail.net

Abstract

A new snake eel, *Pisodonophis sangjuensis*, is described based on 24 specimens collected from the South Sea of Korea (water depth 5–100 m) between 2005 and 2010. This species is characterized by the following morphological features: fleshy protrusions before and behind the posterior nostril; 1–2 regular rows of conical teeth in both jaws, prevomer and vomer are slightly separated from each other; the origin of the dorsal fin above the middle of the pectoral fin; and the pectoral fin is rounded and not elongated. *Pisodonophis sangjuensis* is most similar to *P. cancrivorus* in morphology, but the two species differ in their teeth shape (conical in *P. sangjuensis vs*. granular in *P. cancrivorus*), and their numbers of vertebrae (143–153 *vs*. 153–164, respectively). *Pisodonophis sangjuensis* differs from *P. boro* in the origin of the dorsal fin (above the middle of the pectoral fin in *P. sangjuensis vs*. far behind the pectoral fin in *P. boro*), their numbers of vertebrae (143–153 *vs*. 170–177, respectively), and their teeth shape (conical in *P. sangjuensis vs*. granular in *P. boro*). *Pisodonophis sangjuensis* is also easily distinguishable morphologically from the remaining seven *Pisodonophis* spp. worldwide. Molecular analysis using mitochondrial DNA 12S rRNA sequences supported that *P. sangjuensis* is a new species because of the considerable genetic distance from what appears to be its most closely related species, *P. cancrivorus* (*d*=0.068).

Key words: Ophichthidae, *Pisodonophis sangjuensis*, mitochondrial 12S rRNA, new species, Korea

Introduction

The family Ophichthidae, in the order Anguilliformes, contains 52 genera and more than 260 species. It is characterized by its absent or rudimentary caudal fin (Eschmeyer, 2010; McCosker, 2010), and its habit of burrowing into sandy or muddy seafloor using its hard, pointed tail (McCosker, 1977; Nelson, 2006). This family is widely distributed in tropical and temperate seas around the world (Castle & McCosker, 1999; Nelson, 2006; Hatooka, 2002). Ophichthids usually live at depths of less than 100 m and some species even live in freshwater (McCosker, 2010).
The genus *Pisodonophis* currently comprises seven valid species (*Pisodonophis cancrivorus*, *Pisodonophis boro*, *Pisodonophis copelandi*, *Pisodonophis hypselopterus*, *Pisodonophis hijala*, *Pisodonophis hoevenii*, and *Pisodonophis daspilotus*) (Eschmeyer, 2010; McCosker, 2011). The genus is characterized by the following morphological features: the jaw teeth are conical or blunt and granular, and the maxillary teeth occur in regular or irregular rows; the dorsal fin originates above or behind the pectoral fin; a third preopercular pore is usually present; the prevomer and vomer are slightly separated from each other; and the coloration is generally uniform, except in *Pisodonophis daspilotus* (McCosker, 1977; McCosker *et al*., 1989). In total, 24 specimens of *Pisodonophis* have been collected from the South Sea of Korea that are inconsistent with all other known ophichthids. Therefore, we herein describe their morphological and molecular characteristics, and describe them as a new species.

Material and methods

The species *Pisodonophis sangjuensis* is newly established and described based on 24 specimens (336.0–627.0 mm total length [TL]) caught by set or trawl nets at water depths of 5–110 m in the South Sea (usually “Sangju”) of Korea between 2005 and 2010 (Fig. 1).

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