



Article

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***Opistognathus pardus*, a new species of jawfish (Teleostei: Opistognathidae) from the Western Indian Ocean**

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Abstract

A new species of jawfish, *Opistognathus pardus*, is described based on a single specimen, 98.8 mm SL, recently collected from the Western Indian Ocean off Quilon (Kerala), India. The combination of a rigid maxilla without flexible lamina posteriorly, a unique color pattern in which most of the head is covered with small, irregular-shaped, dark spots, dorsal-fin rays XI, 11, and the outermost segmented pelvic-fin ray tightly bound to adjacent ray, with the interradial membrane not incised distally distinguishes the new species from other congeners. This is the fourth species of *Opistognathus* known from the coast of India or Sri Lanka. A range extension for *O. macrolepis* is also reported.

Key words: Jawfish, *Opistognathus*, new species, India

Introduction

The purpose of this paper is to describe a new species of the jawfish genus *Opistognathus* Cuvier recently collected off Quilon (Kerala), India. The ten species of *Opistognathus* previously known from the western Indian Ocean, including the Red Sea, were newly described or reviewed by Smith-Vaniz (2009, 2010). A total of 39 Indo-West Pacific species of *Opistognathus* are currently recognized as valid (Eschmeyer, 2012), with at least 19 others yet to be described. In addition to the new species described herein, only four other species of *Opistognathus* are known from India or Sri Lanka: *Opistognathus nigromarginatus* Rüppell 1830, *O. rosenbergii* Bleeker 1856, *O. variabilis* Smith-Vaniz 2009, and *O. macrolepis* Peters 1866.

The Indian Ocean record of *Opistognathus macrolepis* is based on a color photograph examined by the first author of a 63 mm SL specimen (ZSI F-10576/2) collected off the Kalpakkam coast near Chennai (Tamilnadu). This jawfish was previously known only from the type locality (Bangkok), the Gulf of Thailand where described by Wongratana (1975) as *Opistognathus rex*, and the Gulf of Carpentaria where described by Whitley (1966) as *Merogymnoides carpentariae*. A full description of the Indian Ocean specimen is in preparation by Sudipta Biswas and others.

Materials and method

Methods of counts and measurements follow Smith-Vaniz (2009, 2010). Infraorbital bones and the upper and lower jaws on the right side of the holotype were removed, cleared and stained and drawn with the aid of a camera lucid. Position of the fifth cranial nerve was determined by dissection prior to clearing and staining. Abbreviations for institutional depositories are Marine Biodiversity Museum at Central Marine Fisheries Research Institute, Kochi, India (CMFRI) and Zoological Survey of India, Kolkata (ZSI).

***Opistognathus pardus* new species**

Leopard jawfish

Figures 1–5

Holotype. CMFRI GB.31.104.1.2, male 98.8 mm SL, off Quilon, Kerala, SW coast of India, trawled in 110–220 m, obtained from local fisherman at Sakthikulangara Fisheries Harbour (Quilon) 27 August 2010.

Diagnosis. A species of *Opistognathus* with the following combination of characters: rigid maxilla without flexible lamina posteriorly; head mostly covered with small, irregular-shaped dark spots (head without such spots except in the Australian species *O. darwinensis* Macleay 1878); dorsal fin XI, 11; total gill rakers 40–41; outermost segmented pelvic-fin ray tightly bound to adjacent ray, with interradiial membrane not incised distally (interradiial membrane deeply incised in all other Indo-Pacific species except *O. muscatensis* Boulenger 1887).



FIGURE 1. *Opistognathus pardus*, n. sp., CMFRI GB.31.104.1.2, male 98.8 mm SL, off Quilon, Kerala, SW coast of India.

Description. (When bilateral counts vary, those from the right side are given in parentheses). Dorsal-fin rays XI, 11. Anal-fin rays II, 11. Pectoral-fin rays 22 (23). Caudal fin: procurent rays 3+3, segmented ray 8+8, middle 12 branch; hypural 5 present. Vertebrae: 10 precaudal+16 caudal, last rib on vertebra 3. A single supraneural bone inserted between neural spines 1–2. Gill rakers 15 (16)+25.



FIGURE 2. *Opistognathus pardus*, holotype (preserved in alcohol).

Scales absent on head and body anterior to vertical from 3rd dorsal-fin spine, including area above and below lateral line; pectoral-fin base with a few scales or scale pockets and belly completely scaly. Body with about 42 or (44) oblique scale rows. Lateral-line ends below vertical from 2nd segmented dorsal-fin ray. Lateral-line pores arranged in single series along embedded lateral-line tubes. Cephalic sensory pores relatively sparse (Fig. 3) and absent from nape; all dentary and preopercular pore positions with relatively large, single pores. Two relatively large infraorbital pores present posteriolaterally on the right side of the holotype could not be detected on left side (but are shown as present in Fig. 3); this is an aberrant condition as pores are consistently present bilaterally in those pore positions in other species of *Opistognathus* examined by the first author.

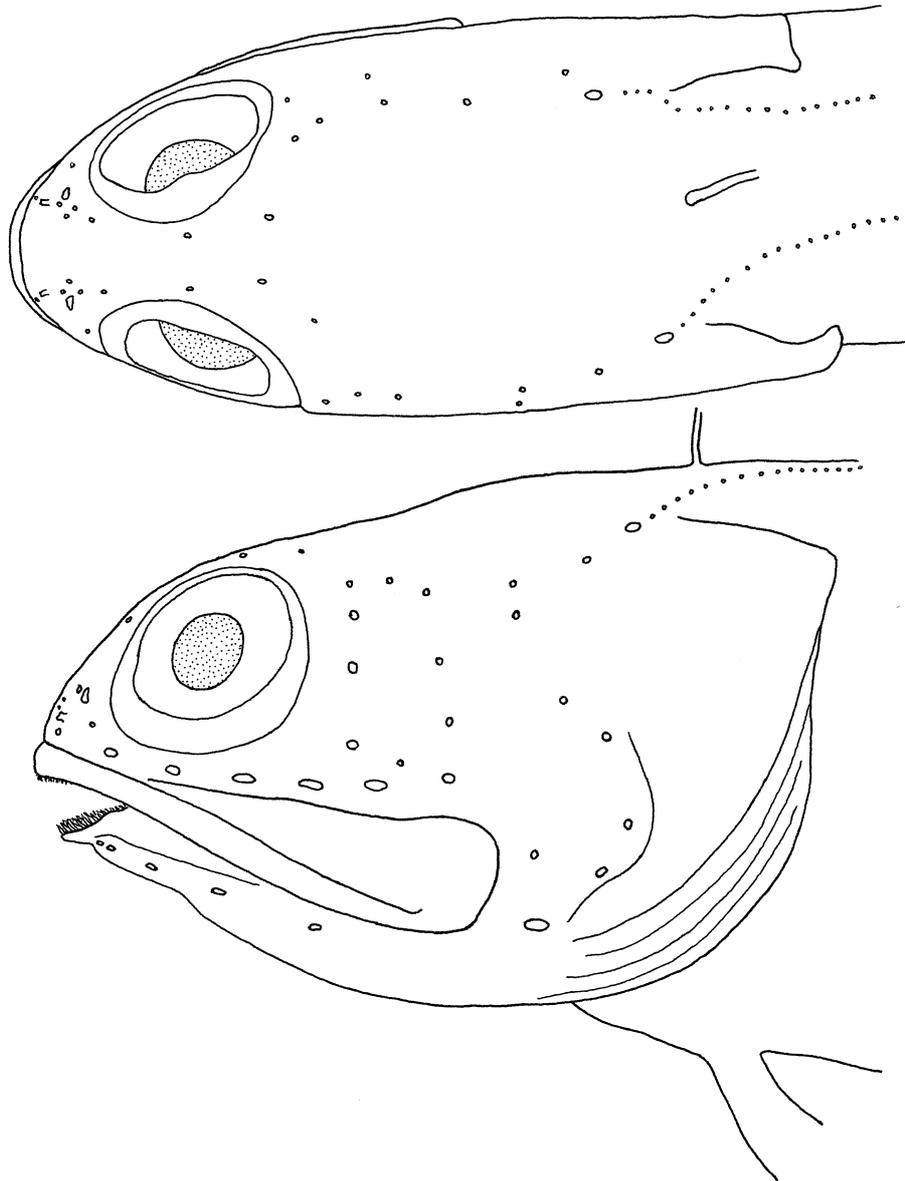


FIGURE 3. Cephalic sensory pores of *Opistognathus pardus*; innermost of two pairs of infraorbital pores, in approximately the 3 and 4 o'clock positions, are shown as present although actually missing (their absence is clearly an aberrant condition, see text for discussion).

Anterior nostril about mid-way between posterior nostril and dorsal margin of upper lip, consisting of short simple tube that when depressed does not reach posterior nostril; height of anterior nostril shorter than maximum diameter of posterior nostril. Dorsal fin moderately low, gradually increasing in height to about middle of spinous dorsal fin; profile with only slight increase in height at origin of segmented rays. Dorsal-fin spines relatively slender and straight without flexible tips; all except 1st and 2nd segmented dorsal- and 1st anal-fin rays branched

distally. Outermost segmented pelvic-fin ray tightly bound to adjacent ray, interrarial membrane not incised distally. Posterior margin of preopercle with indistinct free margin. No papillae on inner surface of lips. Fifth cranial nerve passes under A1 β section of adductor mandibulae.

Upper jaw extends about 1.0 eye diameters behind posterior margin of orbit, widest at end and slightly rounded, without a flexible lamina posteriorly (Fig. 4); supramaxilla relatively large and terminally positioned. Premaxilla with an outer row of moderate conical teeth; anteriorly outer teeth with irregular inner series of smaller conical teeth and a wide inner band of much smaller teeth which is bordered by an inner horizontal row of 5–6 teeth at least as large as those in the outer row. Dentary with an outer row of conical teeth which become larger posteriorly; anteriorly an inner band of much smaller teeth, those on the margin largest; posteriorly band becomes a single inner row of 5–6 teeth as large as the adjacent outer row teeth. Vomerine teeth absent. Infraorbital bones tubular with wide openings for sensory canals (Fig. 4), 3rd infraorbital relatively robust and without a suborbital shelf.

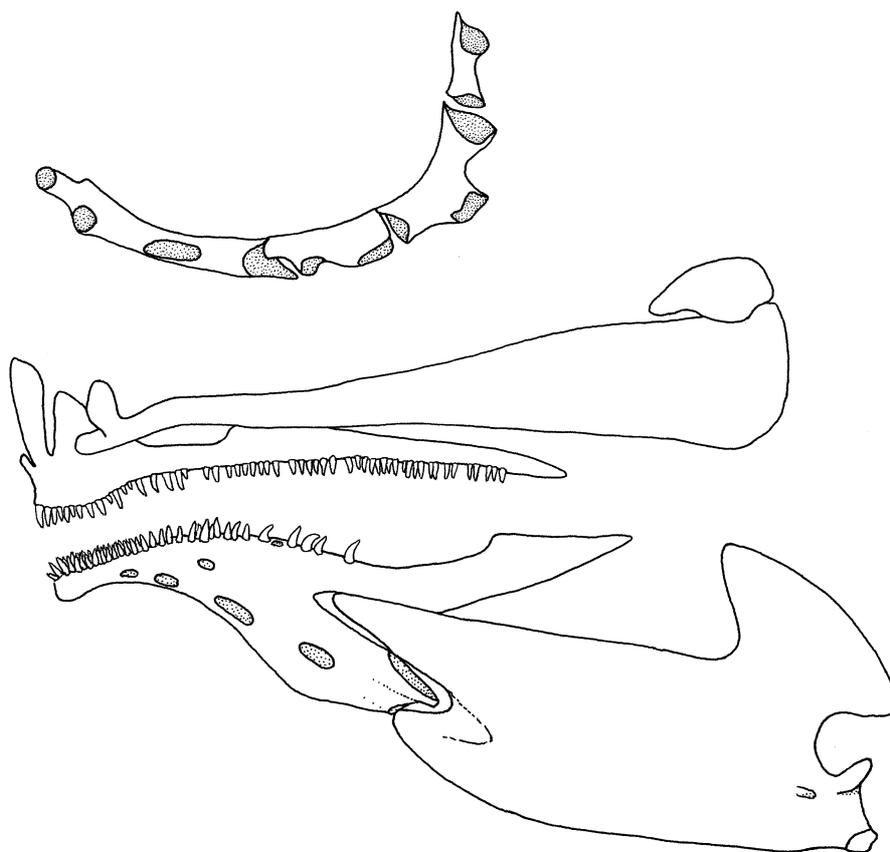


FIGURE 4. Infraorbital bones (above, anterior to left) and upper and lower jaws (below) of *Opistognathus pardus*; reversed drawings of right side.

Measurements of the 98.8 mm SL male holotype, as percent of SL: predorsal length 30.1; preanal length 60.2; dorsal-fin base 64.2; anal-fin base 30.8; pelvic fin length 15.7; caudal fin length 24.9; depth at anal-fin origin 21.3; caudal peduncle depth 12.2; head length 33.8; postorbital-head length 22.3; upper jaw length 20.3; postorbital-jaw length 9.3; orbit diameter 9.4. As percent of head length: postorbital-head length 65.9; upper jaw length 60.2; postorbital-jaw length 27.5; orbit diameter 27.9.

Color in life (Fig. 1). The most distinctive aspect of the color pattern is a series of small, irregular, dark brown spots, on a light tan background, which completely cover the head except for the venter, upper jaw and lower half of the opercle; throat and gill membranes orange-yellow; many scales missing on body but those remaining suggest the body was uniform brown, becoming paler ventrally; dorsal fin background color mostly dusky orange-brown becoming darker distally, except middle of soft dorsal fin brown with broad yellow distal margin; spinous dorsal fin with narrow pale margin and three gray-blue markings, each with narrow dark margins; very narrow diagonal

stripe extends from near tip of 1st spine to anterior base of 3rd spine; ocellus with dusky center on basal third of fin between spines 5–7 and on basal half of fin between spines 9–11; smaller ocellus also present on middle of soft portion of dorsal fin; anal fin yellow-orange; pectoral fin tan and caudal fin brown with posterior margin yellow-orange, narrower ventrally.

Color pattern after preservation (Fig. 2). Similar to above with head spots the most conspicuous markings and ocelli on dorsal fin less apparent; inside of mouth and lining of upper jaw and adjacent membranes pale.

Comparisons. *Opistognathus pardus* can be distinguished from all other species of the genus by its unique color pattern, consisting of a heavily spotted head and the spinous dorsal fin with a very narrow, pale diagonal stripe anteriorly followed by two ocelli. It and *O. muscatensis* are the only Indo-Pacific species that have the two outermost segmented pelvic fin rays tightly bound to each other without the interradiation membrane incised distally. In addition, other species with a rigid maxilla, without a flexible lamina posteriorly, typically have more segmented dorsal-fin rays (12–13) or fewer total gill rakers (19–37) or both. *Opistognathus macrolepis* also differs in having a uniform brown body, dorsal and anal fins with a dark stripe, 29–33 total gill rakers and the outer premaxillary and dentary teeth relatively elongate with blunt tips.

Etymology. From the Greek *Pardos* (leopard), in reference to the distinctive pattern of head spots. The name should be treated as an appositional noun. We recommend the common name Leopard jawfish for this species.

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