

A New Species of the Deep-Sea Ceratioid Anglerfish Genus *Oneirodes* (Lophiiformes: Oneirodidae) from the Western Indian Ocean

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A new species of the deep-sea ceratioid anglerfish genus *Oneirodes* Lütken (Lophiiformes: Oneirodidae) is described on the basis of a single female specimen collected from the Western Indian Ocean. The new form is distinguished from its congeners by a combination of features that includes a relatively short illicium, a unique escal morphology, and shape of the subopercle bone.

THE family Oneirodidae is by far the largest, most complex, and the least understood family of the suborder Ceratioidei, containing nearly 40% of all recognized species (Pietsch, 2009). Among the 16 genera, *Oneirodes* Lütken, 1871 is the largest genus of the family, currently containing 37 species of relatively short, globular to moderately fusiform, bathypelagic anglerfishes. Despite the rareness of most recognized taxa, new oneirodids are continually being described. Here we add an additional species to the growing diversity within this genus with a single metamorphosed female collected from the Western Indian Ocean forming the basis for the following description.

MATERIALS AND METHODS

Standard length (SL) is used throughout. Measurements were taken on the left side whenever possible. To obtain accurate fin-ray counts an incision was made adjacent to the rays and the skin folded back. Tooth fragments and sockets indicating missing teeth were included in jaw and vomerine tooth counts. Tooth counts are the sum of both left and right sides. Measurements were made following Pietsch (1974), taken from the formalin-fixed specimen, and expressed in terms of percent of SL (% SL). Terminology used for describing the angling apparatus follows Bradbury (1967). Locality data include only coordinates for the starting position of the haul. The specimen was collected by the FORV *Sagar Sampada*, during cruise 344, conducted by the Centre for Marine Living Resources and Ecology (CMLRE), Ministry of Earth Sciences, India. The holotype is deposited at the Referral Centre of the CMLRE under accession no. IO/SS/FIS/00437.

***Oneirodes sanjeevani* Rajeshkumar, new species**
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 Figures 1–3

Holotype.—CMLRE IO/SS/FIS/00437, 69 mm, FORV *Sagar Sampada*, Cruise 344, Station 34408, Western Indian Ocean, 00.87°S, 67.59°E, 45 m mid-water trawl (45-meter length opening type mid-water trawl net, trawled between 380–600 m depth), bottom depth 1862 m, 0806 hr, 14 May 2015.

Diagnosis.—A species of the genus *Oneirodes* as diagnosed by Pietsch (1974), differing from all previously described species in having a simple, long, laterally compressed, posterior escal appendage. It is further distinguished by having a relatively short illicium, shape of the subopercle bone and the

following details of escal morphology: anterior appendage internally pigmented; a pair of unbranched, anterolateral appendages; terminal papilla with a single distal spot of pigment; and a pair of fleshy, stout, medial appendages, each divided distally into two or three (on each side) short, slender filaments.

Description.—The escae of all known species of *Oneirodes*, as understood by Pietsch (1974:34, fig. 60), fall into one of three basic escal appendage patterns (A, B, and C). The esca of *O. sanjeevani* belongs to escal appendage pattern B: a darkly pigmented anterior escal appendage, anterior and posterior part of appendage darkly pigmented devoid of middle portion; a pair of small, unbranched, cylindrical, anterolateral escal appendages, each without internal pigmentation, originating from lateral margin of anterior escal appendage; stout, medial escal appendages about one-third length of anterior appendage bearing two or three (on each side) short, slender filaments, without internal pigmentation; escal pore relatively small, placed close to base of the posterior escal appendage; distal surface of terminal papilla rounded, with a small pigment spot; a single, elongate, laterally compressed (except the base), posterior escal appendage, with slight pigmentation, originating from the posterior margin of the escal bulb well below the terminal papilla.

Head length 42% SL; head depth 38% SL; mouth large, cleft extending past eye; frontal bones convex along entire dorsolateral margin; least width between frontals 5.0% SL; pterygiophore of illicium emerging on snout between frontal bones; illicium relatively short, length 20% SL; sphenotic spines well developed, length about 11% SL; premaxillary length 27% SL; lower jaw 29% SL, bearing a well-developed symphyseal spine; quadrate spine well developed, length 7% SL, distinctly longer than articular spine; angular spines absent; pectoral-fin lobe short (13% SL) and broad, shorter than longest rays of pectoral fin; posterior margin of opercle deeply notched; subopercle short and broad, ventral margin nearly circular; dorsal-fin rays 5; anal-fin rays 4; pectoral-fin rays 12 and 13 on each side; caudal fin not covered by darkly pigmented skin except at base; caudal-fin rays 9, branched except dorsal two and ventral two (2 unbranched, 5 branched, 2 unbranched), caudal peduncle depth about 8 mm; teeth in upper jaw 25, in lower jaw 29; teeth on vomer 4; epibranchial teeth absent; teeth present on pharyngobranchial II.

Distribution.—*Oneirodes sanjeevani* is known from a single female specimen collected from the Western Indian Ocean

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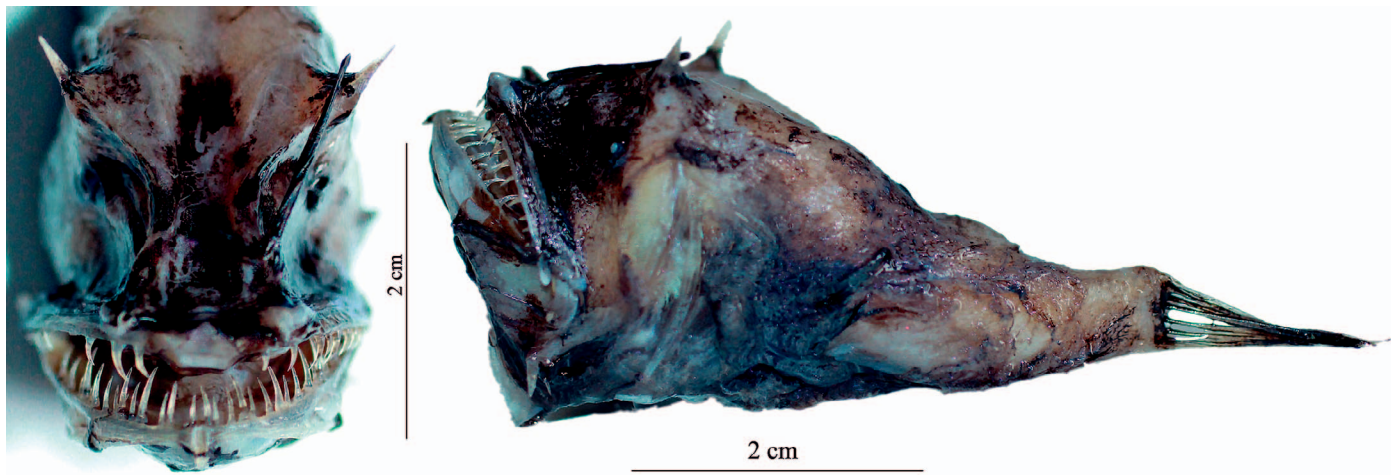


Fig. 1. *Oneirodes sanjeevani*, new species, holotype, 69 mm SL, CMLRE IO/SS/FIS/00437.

(00.87°S, 67.59°E). The specimen was caught at a depth ranging from 380–600 m. In general, members of the genus are found in more productive waters in all three major oceans of the world with a broad vertical depth range between 300 and 3000 meters, but are commonly found between 800 and 1500 meters.

Etymology.—*Oneirodes sanjeevani* is named in honor of V. N. Sanjeevan, former Director of CMLRE, in recognition of his many contribution to the field of Marine Living Resources. The effort he and his team have made in exploring the seas around India and the Indian Ocean sector of the Southern Ocean represents an immense contribution toward the formulation of ecosystem management strategies, including the deep sea and distant water fishery policies.

Comparisons.—*Oneirodes sanjeevani*, new species, can be easily distinguished from its close morphotypes by having unique

morphology of esca and the following combination of characters: short illicium length, narrow head, lower number of teeth on jaws; lower number of pectoral-fin rays; shape of subopercular bone.

Oneirodes sanjeevani, new species, is similar to *Oneirodes carlsbergi*, *Oneirodes dicromischus*, and *Oneirodes cristatus* in having their basic esca appendage pattern B. *Oneirodes carlsbergi* is easily distinguished from the new species by its esca morphology, high number of lower jaw teeth (53–160 vs. 29), higher number of pectoral-fin rays (15–17 vs. 12–13),

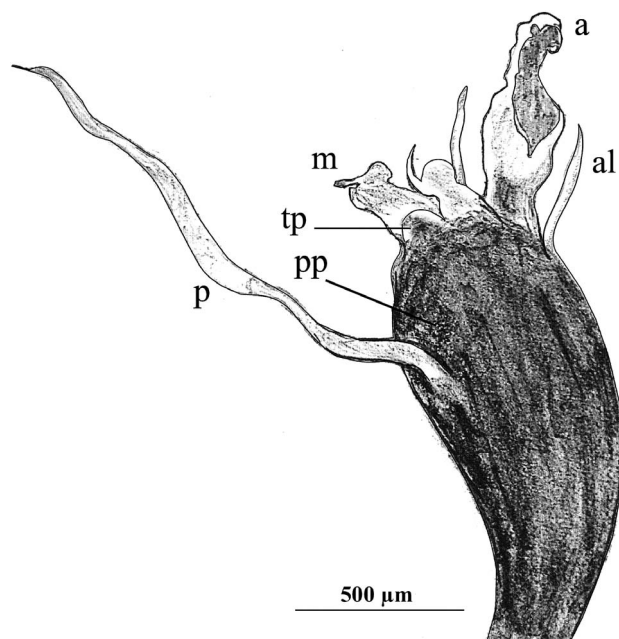


Fig. 2. Esca of *Oneirodes sanjeevani*, new species, holotype, 69 mm SL, CMLRE IO/SS/FIS/00437. a = anterior appendage; al = anterolateral appendages; m = medial appendages; p = posterior appendage; pp = posterior pore; tp = terminal papilla.



Fig. 3. Opercular bone of *Oneirodes sanjeevani*, new species, left side, 69 mm SL, CMLRE IO/SS/FIS/00437.

and presence of teeth on epibranchial I vs. absence of epibranchial teeth.

The illicium length and tooth counts alone easily separate *Oneirodes dicromis* from *O. sanjeevani*, new species: illicial length (60% of SL vs. 20% of SL); upper jaw teeth (65 vs. 25); lower jaw teeth (70 vs. 29); vomer (8 vs. 4).

Oneirodes cristatus is similar to *O. sanjeevani*, new species, having short illicial length (less than 35% of SL vs. 20% of SL); lower-jaw teeth (34–53 vs. 29); pectoral-fin ray counts (13–14 vs. 12–13); absence of epibranchial teeth and presence of teeth on pharyngobranchial II in both species. These two species can be easily separated by escal morphology: *O. sanjeevani* has a simple, long, laterally compressed, posterior escal appendage vs. a short, compressed posterior appendage with small branch on posterior margin; presence of anterolateral appendages vs. absence of anterolateral appendages.

Indian Ocean representative, *Oneirodes mirus*, a member of the *O. schmidtii* group, having basic escal appendage pattern C and relatively long and narrow suboperculum, can be easily distinguished from *O. sanjeevani*, new species. Similar congeners, such as *O. krefftii* and *O. flagellifer*, are well separated from the new species by having a well-developed lateral escal appendage, relatively high number of pectoral-fin rays (17–18) in the former and absence of medial, anterolateral appendages in the latter.

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