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First record of *Brotula barbata* (Bloch, 1801) (Actinopterygii, Ophidiidae) at coast of Bahia State, Brazil (Western Atlantic Ocean)*

Paulo Roberto Duarte Lopes[1]
Jailza Tavares de Oliveira-Silva[1]
Cláudio Luis Santos Sampaio[2]
André de Vasconcelos[3]

ABSTRACT: The marine fauna of Bahia state (Brazil), which possess the country's longest coastline, is little known, especially concerning the fishes. This paper presents the first record of *Brotula barbata* (Bloch, 1801) (Actinopterygii, Ophidiidae) for the Bahian coast, based on a specimen 482.0 mm in total length and 1.085kg, collected about 12°16' S - 38°35' W, at a depth of 234m. This species was previously know from Bermudas to the Pernambuco state (Brazil), and also from the Rio de Janeiro state (Brazil). The specimen is housed at the collection of Laboratório de Ictiologia, Universidade Estadual de Feira de Santana, preserved in 70% alcohol. The species has been determined by the following combination of characters: presence of eight barbels in the snout and six barbels in the mento; body

* UEFS, SECIRM, CNPq

[1] Universidade Estadual de Feira de Santana - Dep. Ciências Biológicas - Lab. Ictiologia, Campus universitário - km 03 (BR-116), 44031-460 - Feira de Santana, Bahia, Brasil. peixemar@uefs.br

[2] Bolsista CNPq, Programa REVIZEE/SCORE Central - Universidade Estadual de Feira de Santana - Dep. Ciências Biológicas - Lab. Biologia Pesqueira, Campus universitário - km 03 (BR-116), 44031-460 - Feira de Santana, Bahia, Brasil. clssampaio@ig.com.br

[3] Bolsista CNPq, Programa REVIZEE/SCORE Nordeste - Universidade Federal Rural de Pernambuco - Dep. Pesca, Rua Dom Manoel de Medeiros, s/nº, 52175-030 - Recife, Pernambuco, Brasil.

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color brown, with a few scattered dark blotches and with the margins of the pectorals, dorsal, anal, and caudal fins blackish.

Key Words: Record, Teleostei, *Brotula barbata,* Bahia, Brazil.

INTRODUCTION

The family Ophidiidae comprises four subfamilies, 46 genera, and about 209 species of fishes that occur in the Atlantic, Indian, and Pacific oceans. One of these subfamilies, Brotulinae is characterized by the presence of barbels on snout and mento, it includes a single genus, *Brotula* Cuvier, 1829, with circumtropical distribution and five species (COHEN & NIELSEN, 1978; NELSON, 1994).

Brotula barbata (Bloch, 1801), the only species in this cited genus to the Western Atlantic Ocean, reaches 750mm in length and four kilograms in weight, and is was recorded from Bermudas, Carolina do Norte, Gulf of Mexico, Caribbean, Colombia, Venezuela, Suriname, and French Guyana, at depths between 18 m and the upper margin of the continental slope (HUBBS, 1944; OSUNA & CERVIGÓN, 1968; UYENO *et al.*, 1983; CERVIGÓN *et al.*, 1992; FRANKE & ACERO P., 1995; LOPES & TOMÁS, 1998).

The first record of *B. barbata* for Brazil has been done by KOIKE *et al.* (1977) between Tamandaré and Barra de Sirinhaem, Pernambuco state (northeastern coast of Brazil). A specimen of *B. barbata*, collected at a depth of 130m in Cabo de São Tomé (Rio de Janeiro state, southeastern coast of Brazil), but not housed at a scientific collection, was cited by LOPES & TOMÁS (1998), as representing the southern limit of *B. barbata*'s geographic distribution.

The present article is the first documented record of *B. barbata* in Bahia, this study aims to contribute to a better understanding of the ichthyofauna occurring along the coast of Bahia state, which possesses the most extensive coastline in Brazil (1188km - corresponding to 13.2% of the total length of the Brazilian coast) (BAHIA PESCA, 1994).

MATERIAL AND METHODS

The present study is based on a specimen of *B. barbata* (Figure 1) collected on March 30th, 1999 in Subauma (Entre Rios municipality, about 12°16'S - 38°35'W, coast of Bahia state, northeastern Brazil), with the aid of a bottom line by a boat of the artesanal line fishing fleet, at a depth of about 234 m.

The specimen of *B. barbata* was donated to one of the authors (A. Vasconcelos) who, in turn, deposited it at Laboratório de Ictiologia (Departamento de Ciências Biológicas), Universidade Estadual de Feira de Santana (LIUEFS), where the voucher specimen (LIUEFS 3438) was housed, and preserved in 70% alcohol.

Measurements were obtained with the aid of calipers to the nearest 0.05mm (except total length - TL, that has been measured with a ruler to the nearest 1.0mm). The weight of the specimen was determined at landing by means of a balance to the nearest 0.5 g. Identification to generic and specific levels follows the criteria adopted by HUBBS (1944), OSUNA & CERVIGÓN (1968), KOIKE *et al.* (1977) and UYENO *et al.* (1983).

Figure 1. *Brotula barbata* (Bloch, 1801) - LIUEFS 3438 (1: 482.0 mm TL)

RESULTS

Material examined: LIUEFS 3438 (1: 482.0 mm TL, 1.085 kg) - Subauma, Entre Rios county (about 12°16'S - 38°35'W), Bahia state, Brazil (Figure 1).

Meristic and morphometric data are presented, respectively, in Tables 1 and 2.

Table 1. Meristic data for *Brotula barbata* (Bloch, 1801) - LIUEFS 3438 (coast of Bahia, Brazil).

Character	Number
Dorsal fin (rays)	112
Anal fin (rays)	81
Pectoral fins (rays)	26
Caudal fin (rays)	15
Scales in lateral line	185
Scales above lateral line	20
Scales below lateral line	41
Upper gill rakers	5*
Lower gill rakers	17**

* rudiments only
** 3 developed and 14 rudiments

Table 2. Morphometric data for *Brotula barbata* (Bloch, 1801) - LIUEFS 3438 (coast of Bahia, Brazil).

Character	(mm)
Total length	482.0
Standard length	465.0
Body depth	95.9
Head length	111.1
Snout length	26.1
Orbital diameter	29.7
Base of pectoral fins length	26.7
Pectoral fins length	52.7
Pelvic fins length	54.5
Pre-anal length	233.3
Caudal fin length	29.4
Upper maxila length	50.5

Diagnosis

Body elongated, compressed, and covered by cycloid scales. Head well-developed and slightly depressed; snout short. Two pairs of nostrils located between the mouth and the eyes, the anterior one smaller than the posterior; long and slender barbel present at the posterior margin of the anterior nostril. Eyes well-developed, located near the tip of the snout. Mouth wide, in terminal position; upper jaw extending beyond the posterior margin of the orbit; viliform teeth plate of upper jaw more developed than that of the lower jaw; teeth plate of vomer V-shaped; teeth plate of palatine elongated, well-developed; teeth of vomer and palate viliform but less developed than those present at the jaws. Presence of 8 barbels at the upper jaw (4 more developed and 4 less developed); 6 barbels present at the lower jaw (3 more developed and 3 less developed). Branchial openings wide; only 3 long, well-developed, and widely spaced gill rakers at the first gill arch. Branchiostegals free from isthmus with 8 rays on each side. A single lateral line, beginning at the upper margin of opercle with a slight ascent, followed by a gradual descent and becoming straight up to the base of the caudal fin.

Pectoral fins developed, rounded and located lower in the body; pelvic fins at jugular position, located forward the pectoral fins and reduced to 2 filaments of the same size, with lengths extending beyond the bases of the pectoral fins. Dorsal and anal fin confluent at the caudal fin. Dorsal fin beginning at a slightly posterior position in relation to the vertical line that crosses the base of the pectoral fin. Origin of the anal fin at the anterior half of the dorsal fin. Caudal fin short, pointed.

Coloration (in 70% alcohol)

Body coloration brown throughout, with small, scattered dark blotches, especially at the anterior half of the trunk. Median and dorsal regions of the head, extending dorsally up to the origin of the dorsal fin, darker than the remaining of the body. Branchiostegals and mouth lighter. Body regions below the right pectoral fin despigmented. Posterior third of the pelvic fins blotched. Lateral line dark. Fins the same color of the body but pectorals, dorsal, anal, and caudal fins with blackish margins.

DISCUSSION

The specimen LIUEFS 3438 can be confirmed as an adult by not showing the color pattern of large melanophores, considered to be distinctive of juveniles in the species of *Brotula* (HUBBS, 1944; OSUNA & CERVIGÓN, 1968; CERVIGÓN *et al.*, 1992). Body coloration, in general, do not differ from that noted by OSUNA & CERVIGÓN (1968) and KOIKE *et al.* (1977), although they have examined specimens kept in formalin, whereas the present study was based on a frozen specimen. Those authors, as well as UYENO *et al.* (1983) confirmed the presence of a black margin on the pectorals, dorsal, anal, and caudal fins. However, the colour of LIUEFS 3438 specimen differ from that cited by FRANKE & ACERO P. (1995) which are possibly based in fresh specimens.

Regarding the ratios given in the key by HUBBS (1944), the specimen LIUEFS 3438 differs only in the upper jaw/ standard length ratio. With regard to the meristic and morphometric characters and ratios given by HUBBS (1944), OSUNA & CERVIGÓN (1968), KOIKE *et al.* (1977), and FRANKE & ACERO P. (1995) few variations were observed in relation to the specimen LIUEFS 3438, contributing to confirm the identification. In relation to the characterization of the tooth plates in the vomer and palatine, the individual examined agrees to the descriptions presented by OSUNA & CERVIGÓN (1968) and KOIKE *et al.* (1977), showing the differences already pointed out by OSUNA & CERVIGÓN (1968) concerning those cited by HUBBS (1944).

According to CERVIGÓN *et al.* (1992), in the north of South America a few juvenile individuals of *B. barbata* are rarely caught in trawl shrimp fishery. In Brazil, the few records of *B. barbata* reflect the insufficient sampling of deep waters, and the southern limit of its geographic distribution remains undefined. Considering the scarcity of information on the presence of *B. barbata* in Brazilian waters, it is still not possible to assess its importance to commercial fishing in this region of the Western Atlantic Ocean.

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