

FIRST RECORD OF *Polymixia nobilis* LOWE, 1838 (ACTINOPTERYGII: POLYMIXIIDAE) IN CEARÁ STATE, BRAZIL

Primeiro registro de *Polymixia nobilis* Lowe, 1838 (Actinopterygii: Polymixiidae) no Estado do Ceará, Brasil

Carolina Cerqueira de Paiva¹, Rodrigo de Salles², Maria Elisabeth de Araújo³

ABSTRACT

The species Polymixia nobilis Lowe, 1838 (Actinopterygii: Polymixiidae) is recorded for the first time in the state of Ceará, Brazil, based on one specimen collected on the Aracati Seamount at a 205 meter depth. Moreover, new meristic and morphologic data are presented.

Key words: *Polymixia nobilis, first record, taxonomy, geographic distribution, Ceará State.*

RESUMO

A espécie Polymixia nobilis Lowe, 1838 (Actinopterygii: Polymixiidae) é registrada pela primeira vez no Ceará devido à coleta de um exemplar no banco oceânico do Aracati a 205 m de profundidade. São apresentadas também novas informações sobre as variações merísticas e morfológicas da espécie.

Palavras-chaves: *Polymixia nobilis, primeiro registro, taxonomia, distribuição geográfica, Estado do Ceará.*

¹ Bióloga, Instituto de Ciências do Mar, Laboratório de Ecologia Animal (LECA). Av. da Abolição 3207, Fortaleza, CE 60165-081.

² Bolsista da Fundação Cearense de Apoio ao Desenvolvimento Científico e Tecnológico – CAPES/FUNCAP.

³ Professora Associada II, Departamento de Oceanografia – UFPE, Av. Arquitetura, s/n, Campus Universitário, Recife, PE 50740-550.

INTRODUCTION

Polymixia is the only genus of family Polymixiidae and comprises ten species, among which only two are recorded in the Atlantic Ocean: *Polymixia nobilis* Lowe, 1838 and *Polymixia lowei* Günther 1859 (Eschmeyer, 2009), commonly known as beardfish (Woods & Sonoda, 1973). *P. nobilis* is found in the Eastern and Western Atlantic. In the western side is recorded in Canada, the southeastern United States, Bermuda, the Bahamas, the Greater Antilles, northern Gulf of Mexico, Colombia, northern South America and northeastern Brazil (southeastern Rocas Seamount - 04°15'05"/33°10'0W and states of Rio Grande do Norte, Pernambuco and Bahia) (Guedes & Koike, 1984; Moore, 2002; Lopes *et al.* 2003; Shackell & Frank, 2003; Roa-Varón *et al.*, 2007). The other species of *Polymixia* occurring in the Atlantic (*P. lowei*) is only recorded in the western side, from Canada to French Guyana, including the Gulf of Mexico and the Caribbean, as well as along the entire coast of Brazil down to Uruguay (McEachran & Fechhelm, 1998; Moore, 2002; Menezes *et al.*, 2003; Bernardes *et al.*, 2005).

P. nobilis differs from *P. lowei* in the greater number of rays on the dorsal fin (34 to 38 versus 27 to 30) and the lower number of gill rakers in the first gill arch (10 to 13, with 7 to 9 in the lower limb, versus 16 to 22, with 9 to 13 in the lower limb in *P. lowei*) (Woods & Sonoda, 1973; Cervigón, 1991).

The aim of the present study was to register the broadening of the geographic distribution of *P. nobilis* in northeastern Brazil.

MATERIALS AND METHODS

The material was obtained through surveys carried out by the Program "Avaliação do Potencial Sustentável dos Recursos Vivos da Zona Econômica Exclusiva" (REVIZEE/SCORE-NE) off Ceará State (northeastern Brazil) and is deposited at the Dias da Rocha Ichthyological Collection (CIDRO) of the Instituto de Ciências do Mar (LABOMAR/UFC).

The articles published by Lachner (1955), Woods & Sonoda (1973), Guedes & Koike (1984), Kotlyar (1984), Heemstra (1986), Cervigon (1991), McEachran & Fechhelm (1998), Lopes *et al.* (2003) and Roa-Varón *et al.* (2007) were used for the species identification. Measurements were taken and expressed as a function of standard length (%SL) in millimeters. The collection number, collection site, collection date, collector in parentheses and total length in millimeters are informed.

RESULTS

Material examined: CIDRO 432, Ceará, Aracati Seamount, 02°59'40"S/ 38°53'10"W, depth of 205 m (Figure 1), 03.12.1999 (R. Salles) (1 specimen; 285.3 mm) (Figure 2).

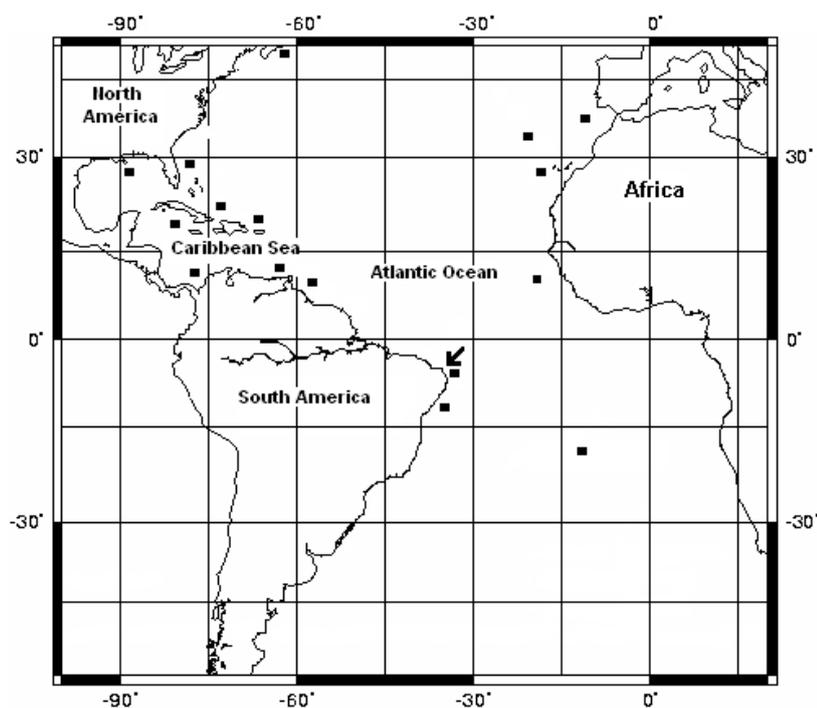


Figure 1 - Known distribution (squares) and new record (arrow) of *Polymixia nobilis* Lowe, 1838.

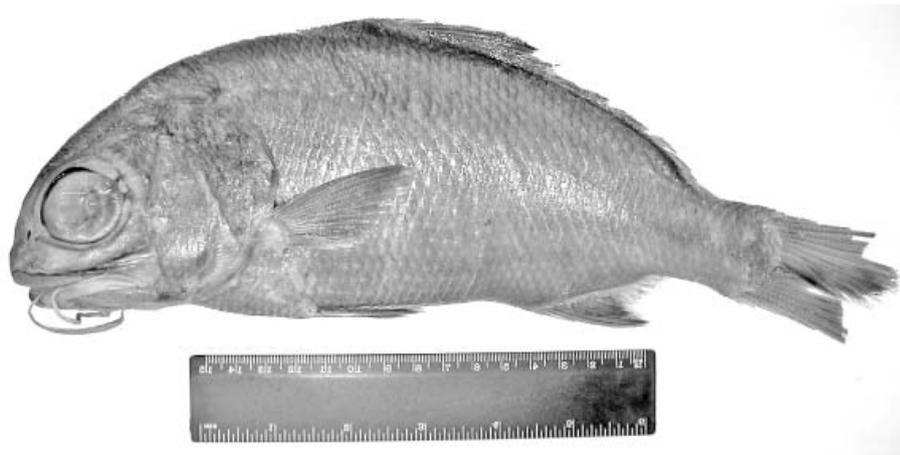


Figure 2 - *Polymixia nobilis* Lowe, 1838, 285.3 mm TL, CIDRO 432.

Description: D. VI.35; A. IV.17; P. 17; V. 7; scales on lateral line with pores, 37; transversal series of scales, 48; vertical series of scales, 56; scales of the vertical series between origin of dorsal fin and lateral line, 7; scales of the oblique series between the origin of the dorsal fin and the lateral line, 16; scales of the oblique series between the lateral line and the origin of the anal fin, 16; rows of ctenii on scales, 6; gill rakers, 3+1+7, with no inclusion of rudiments; branchiostegal rays, 7 (4 with normal structure and 3 modified around the base of the barbels). Body depth, 37.8% of standard length; head length, 34.6%; eye diameter, 10%; interorbital width, 8.2%; snout length, 7.1%; upper jaw length, 18.1%; lower jaw length, 16.6%; barbel length, 27%; pre-dorsal length, 53.1%; length of base of dorsal fin, 45.7%; pectoral fin length, 20.2%; and ventral fin length, 15.7% of standard length. Head robust and scaly. Pre-operculum non-serrated. Eyes proportionately large in relation to the head, with the diameter corresponding to tenfold the standard length. A pair of barbels in the gular region near the junction of the gill membranes. Mouth approximately horizontal, with lower jaw slightly shorter than the upper jaw. Pre-maxillary protractile. Teeth viliform, present in pre-maxillary, palatines, vomer, pterygoids and tongue. Posterior nostrils much larger than anterior nostrils. Body oval and elongate, sides compressed. Scales ctenoid. Dorsal fin continuous, with the anterior portion formed by spines of increasing length. Ventral fins located in median region of the length of the pectoral fins, in a sub-abdominal position. First anterior ray of ventral fins unbranched. Forked caudal fin with spines that precede the rays at the dorsal and ventral margins. Coloration of the preserved specimen: gray, with the back darker and lobes of the dorsal and anal fins blackish.

DISCUSSION

Some meristic and morphological differences were found between the specimen examined and data on the available literature. The spines on the dorsal fin vary between four and five in papers by Lachner (1955), Woods & Sonoda (1973), Kotlyar (1984), Heemstra (1986), McEachran & Fechhelm (1998), Lopes *et al.* (2003) and Roa-Varón *et al.* (2007), whereas six spines were found on the specimen examined. However, this result is in agreement with the finding described by Guedes & Koike (1984) and Cervigon (1991). The presence of a spine and/or spinous ray on the pectoral fins (Woods & Sonoda, 1973; McEachran & Fechhelm, 1998; Roa-Varón *et al.*, 2007) and ventral fins (Woods & Sonoda, 1973; Cervigon, 1991; McEachran & Fechhelm, 1998; Roa-Varón *et al.*, 2007) has been recorded. However, only rays were observed on the specimen examined, which is in agreement with the rest of the literature consulted. The gill rakers only differed from those described by Guedes & Koike (1984), who found seven and eight in the upper limb and five in the lower limb, whereas the specimen examined here had three rakers in the upper limb, one intermediate and seven in the lower limb.

Despite those differences in relation to the literature, it should be stressed that the diagnostic characters are the most important and these reveal that the specimen matches the identification keys (Woods & Sonoda, 1973; Cervigón, 1991). Moreover, only nine specimens have been recorded in Brazil (Guedes & Koike, 1984; Lopes *et al.* 2003), whereas tens of specimens have been studied in the other locations in which *P. nobilis* has been recorded (Lachner, 1955; Woods & Sonoda, 1973; Kotlyar, 1984;

Cervigón, 1991; McEachran & Fechhelm, 1998; Roa-Varón *et al.*, 2007). Therefore, the material examined from Ceará State reveals the broadening of the geographic distribution of *P. nobilis* in northeastern Brazil. Furthermore, meristic and morphological variations of the species in Brazil are made known.

REFERENCES

- Bernardes, R.A.; Figueiredo, J.L.; Rodrigues, A.R.; Fischer, L.G.; Vooren, C.M.; Haimovici, M.; Rossi-Wongtschowski, C.L.D.B. *Peixes da Zona Econômica Exclusiva da região sudeste-sul do Brasil: levantamento com armadilhas, pargueiras e rede de arrasto de fundo*. EDUSP, 295 p., São Paulo, 2005.
- Cervigon, F. *Los peces marinos de Venezuela*. Fundación Científica Los Roques, 425 p., Caracas, 1991.
- Eschmeyer, W. *The Catalog of Fishes on-line* Disponível em: < <http://www.calacademy.org>>. Acesso em: 12 jun. 2009.
- Guedes, D.S.; Koike, J. Ocorrência de *Polymixia nobilis* Lowe, Pisces, Polymixiidae; na costa do nordeste brasileiro. *Caderno Ômega*, v.1, n.1, p.7-15, 1984.
- Heemstra, P.C. Family No. 134: Polymixiidae, p.432, in Smith, M.M.; Heemstra, P.C. (eds), *Smiths' sea fishes*. Macmillan, 1047 p., Johannesburg, 1986.
- Kotlyar, A.N. Systematics and the distribution of fishes of the family Polymixidae (Polymixioidei, Beryciformes). *J. Ichthyo.*, v.24, n.6, p.1-20, 1984.
- Lachner, E.A. Populations of the berycoid fish family Polymixiidae. *Proc. US Nat. Mus.*, v.105, n.3356, p.89-206, 1955.
- Lopes, P.R.D.; Oliveira-Silva, J.T.; Sampaio, C.L.S.; Matsui, N.; Ferreira, A. V.; Olavo, G. Primeiros registros de *Polymixia nobilis* Lowe, 1836 e *Urophycis cirrata* (Goode & Bean, 1896) (Actinopterygii: Polymixiidae, Phycidae) no litoral da Bahia, Brasil (Oceano Atlântico ocidental). *Acta Científica - Biologia e Saúde*, São Paulo, v.5, n.2, p.78-82, 2003.
- McEachran, J.D.; Fechhelm, J.D. *Fishes of the Gulf of Mexico: Myxiniiformes to Gasterosteiformes*. University of Texas Press, 1112 p., Austin, 1998.
- Menezes, N.A.; Buckup, P.A.; Figueiredo, J.L.; Moura, R.L. (eds). *Catálogo das espécies de peixes marinhos do Brasil*. Museu de Zoologia da Universidade de São Paulo, 60 p., São Paulo, 2003.
- Moore, J.A. Polymixiiformes, p.960-962, in Carpenter, K.E. (ed.), *The living marine resources of the western central Atlantic*. FAO species identification guide for fishery purposes, v.2, p.1-1373., Roma, 2002.
- Roa-Varón, A.; Saavedra-Díaz, L.M.; Acero, A.P.; Mejía, L.S.M. Nuevos registros de peces para el Caribe Colombiano de los órdenes Myctophiformes, Polymixiiformes, Gadiformes, Ophidiiformes y Lophiiformes. *Bol. Invest. Mar. Cost.*, Colombia, v.36, p.181-207, 2007.
- Shackell, N.L.; Frank, K.T. Marine fish diversity on the Scotian Shelf, Canada. *Aquatic Conservation: Marine and Freshwater Ecosystems*, v.13, p.305-321, 2003.
- Woods, L.; Sonoda, P. Order Berycomorphi (Beryciformes), p.263-395, in Cohen, D.M. *et al.* (eds), *Fishes of the western north Atlantic*. Sears Foundation for Marine Research, v.6, n.1, 698 p., New Haven, 1973.