

FIRST REPORT OF *MAZOCRAEOIDES GEORGEI* PRICE, 1936 AND
MAZOCRAEOIDES OPISTHONEMA HARGIS, 1955 IN BRAZIL WITH NEW
SYNONYMS (MONOGENEA, MAZOCRAEIDAE)

ANNA KOHN*/* & CLÁUDIA PORTES SANTOS**/**

* Instituto Oswaldo Cruz, Departamento de Helminologia, Caixa Postal 926, 20001 Rio de Janeiro, RJ, Brasil

** Departamento de Biologia Animal, Universidade Santa Úrsula, Rua Fernando Ferrari, 75, 22231 Rio de Janeiro, RJ, Brasil

Mazocraeoides georgei Price, 1936 and *Mazocraeoides opisthonema* Hargis, 1955 are reported for the first time in Brazil in *Brevoortia aurea* (Spix, 1829) and in *Harengula clupeiola* (Cuvier, 1829) respectively, clupeid fishes from the littoral of Rio de Janeiro State, which represent new host records. *Mazocraeoides olentangiensis* Sroufe, 1958 and *Mazocraeoides hargisi* Price, 1961 are considered new synonyms for *Mazocraeoides georgei*.

Key words: *Mazocraeoides georgei* – *Mazocraeoides opisthonema* – Monogenea – clupeid fishes – Brazil

Despite the great number of papers referring to helminth parasites of fishes from Guanabara Bay, few of them deal with Monogenea. In this paper, the first report of 2 species of *Mazocraeoides* parasitizing nerito-pelagic marine clupeids in Brazil is presented.

MATERIAL AND METHODS

The fishes were obtained from fishermen of "Praia da Ribeira, Ilha do Governador", Rio de Janeiro State. Parasites were recovered directly from the gills which had been placed in saline medium. Some worms were fixed under light cover-glass pressure in AFA or in 10% formalin without compression, stained in alcoholic-acid carmine of Langeron, dehydrated in EtOH, cleared in creosote and mounted in Canada balsam. The illustrations were made with the aid of a drawing tube; measurements are in micrometres, with means in parentheses unless otherwise specified. The studied material was deposited in the Helminthological Collection of the Oswaldo Cruz Institute.

RESULTS

Mazocraeoides georgei Price, 1936
(Figs. 1, 2, 4)

Host: *Brevoortia aurea* (Spix, 1829) (new host record).

Site: gills.

Locality: "Ilha do Governador, Baía de Guanabara". Rio de Janeiro.

Specimens deposited: Helm. Coll. of "Instituto Oswaldo Cruz" no. 32.433 a-c, 32.434 a-c, 32.435 and 32.436 a-d.

The main measurements of 10 specimens are presented herein, considering that the morphology of this species is well known.

Body clavate 0.78-1.5 (1.06) mm long by 0.15-0.52 (0.27) mm wide. Suckers of prohaptor 22-30 (27) long by 21-30 (26) wide. Pharynx 37-48 (42) long by 22-30 (26) wide. Clamps of opisthohaptor 30-45 (36) long by 33-47 (39) wide.

Three pairs of subterminal anchors. Largest lateral anchors 61-67 (64) long. Smallest intermediate anchors formed by a straight part 7-12 (8) long and a smaller curved one 6 long. Inner medial anchors 21-27 (24) long.

The genital corona has 5 pairs of spines 13 long, placed in a muscular disc that has 24-33 (28) in diameter and 1 pair of spines 11-15 (12) on each lateral muscular pad. This genital corona is situated at 130-260 (190) from anterior end.

DISCUSSION

Mazocraeoides georgei was briefly described by Price in 1936. Linton (1940) redescribed

Research Fellow: * CNPq and ** CAPES.

Received on February 4, 1988.

Accepted June 24, 1988.

and figured it from *Pomolobus pseudoharengus* and *P. mediocris* from Woods Hole Massachusetts; although the measurements given were few, the internal morphology has been well described. Linton also refers: "these worms were very active contracting to a length of 0.6 mm and stretching to a length of 1.8 mm".

Hargis (1955a) redescribed this species based on specimens from MacCallum's collection, referring that the shape of the eggs were variable having or not filaments; posteriorly, in the same year, this author presented two redescriptions of *M. georgei* from *Brevoortia patronus* and *Pomolobus pseudoharengus* from Florida and Massachusetts, stating that they could be different species based on hosts, size and shape of the genital corona spines.

In 1958, Sroufe described *Mazocraeoides olentangiensis* from *Dorosoma cepedianum* from Ohio, comparing with the most related species *M. georgei*, from which differed by measurements of hard parts, extent of the ovary, morphology of genital corona, number of polar filaments of eggs and difference in hosts.

In 1961, Price only based on Hargis's description (1955b) of *M. georgei* from *B. patronus*, created a new species *Mazocraeoides hargisi*, also redescribing the specimens of *M. georgei* collected by Linton and MacCallum. In the same paper Price listed *M. olentangiensis* with two synonyms: *Mazocraeoides similis* Price, 1959 and *Mazocraes cepedianum* Kimpel, 1938, and pointed out that they could easily be distinguished from *M. georgei* "in the absence of a vaginal opening and in the morphology of the large anchors".

Wright & Dechtiar in 1974 presented light and scanning electron microscopy of *M. olentangiensis*.

All these species occur in North America. In 1979, Suriano described *Mazocraeoides argentinensis* parasitizing *Brevoortia pectinata* from the Argentine coast, differing from *M. olentangiensis* by the great size of clamps and anchors.

From 4 *Brevoortia aurea* examined, 12 specimens of *Mazocraeoides* (Price, 1936) were recovered. The morphology of this material looks similar to *M. georgei*, *M. olentangiensis* and *M. hargisi*, their measurements interlocked

and the differences cited by the authors are not sufficient enough to separate them.

Regarding the genital corona, depending on the author, the number of spines is variable and the external one can be referred as bifid or not because of the difficulty of visualization depending on the position. Hargis (1955b) refers the variable position of ovary and testis not serving as a valid character; Linton (1940) pointed out the great variation of body length related to its extension and contraction, and Hargis (1955a) cited that eggs can vary its morphology.

These three species occur in clupeids of the Americas and the diversity of hosts is not sufficient to separate them as valid species.

Based on this, *M. olentangiensis* and *M. hargisi* are considered as new synonyms of *M. georgei* and new host and geographical distribution are presented.

The studied material still differs of *M. argentinensis* by the size of anchors and clamps, although the author presents only one measure of the hard parts.

Mazocraeoides opisthonema Hargis, 1955
(Figs. 3 and 5)

Host: *Harengula clupeola* (Cuvier, 1829)
(new host record).

Site: gills.

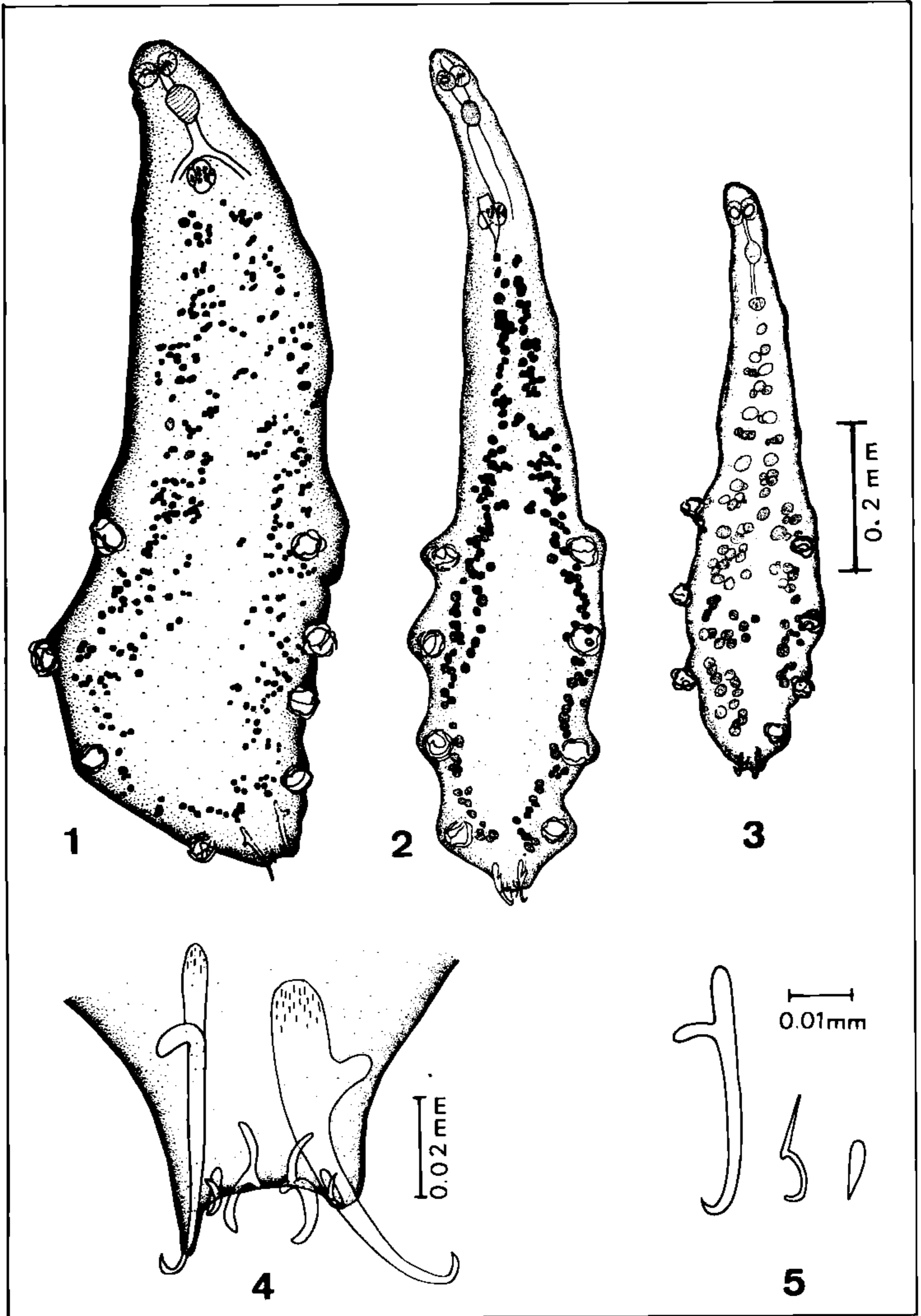
Locality: "Ilha do Governador, Baía de Guanabara", Rio de Janeiro.

Specimens deposited: Helm. Coll. of "Instituto Oswaldo Cruz" no. 32.437, 32.438a-e, 32.439a-c.

As the morphology of *M. opisthonema* had been well described by Hargis, only the main measures of 9 specimens, are presented.

Body clavate 560-990 (720) long by 110-260 (160) wide. Suckers of prohaptor 15-22 (17) in diameter. Pharynx 22-33 (25) long by 13-24 (18) wide. Clamps of opisthohaptor 19-22 (21) long by 20-25 (22) wide.

Three pairs of subterminal anchors: largest lateral anchors 32-48 (39) long, smallest



Mazocraeoides georgei. Figs. 1-2: variation of body shape, distribution of clamps and vitellaria. Fig. 4: opisthohaptor with anchors. *Mazocraeoides opisthonema*. Fig. 3: body shape, distribution of clamps and vitellaria. Fig. 5: detail of anchors. Figs. 1-3 are drawn to the same scale.

intermediate anchors 6-9 (6) long and the inner medial anchors 10-15 (12) long.

The mid-ventral genital-corona situated at 120-140 (120) from anterior end consists of a central muscular piece with 14-26 (19) in diameter armed with five pairs of spines 5-6 (5), and two lateral muscular pads with a pair of spines 6-7 (6) in each one.

DISCUSSION

From 3 *Harengula clupeola* (Cuvier, 1829) out of 4 examined were recovered 1, 4 and 6 specimens of *M. opisthonema*, respectively. This species had been described from *Opisthonema oglinum* (Gill), from Tampa Bay, Florida. In 1961, Price examined the holotype, and figured the large opisthohaptoral anchors adding no more information.

M. opisthonema resembles in morphology *M. georgei* Price, 1936, differing by the measurements of hard parts. The similarity among the species of the genus *Mazocraeoides* had been already pointed out by Suriano (1979).

RESUMO

Primeira referência de *Mazocraeoides georgei* Price, 1936 e *Mazocraeoides opisthonema* Hargis, 1955 no Brasil com novos sinônimos (Monogenea, Mazocraeidae) – *Mazocraeoides georgei* Price, 1936 e *Mazocraeoides opisthonema* Hargis, 1955 são referidos pela primeira vez no Brasil em *Brevoortia aurea* (Spix, 1829) e em *Harengula clupeola* (Cuvier, 1829) respectivamente, peixes clupeídeos do litoral do Estado do Rio de Janeiro, que representam novos hospedeiros. *Mazocraeoides olentangiensis* Sroufe, 1958 and *Mazocraeoides hargisi*, Price,

1961 são considerados novos sinônimos de *Mazocraeoides georgei*.

Palavras-chave: *Mazocraeoides georgei* – *Mazocraeoides opisthonema* – Monogenea – peixes clupeídeos – Brasil

ACKNOWLEDGEMENTS

The authors express their thanks to Dr J. V. Andreatta, from Santa Úrsula University for the identification of fishes and to "FINEP – Financiadora de Estudos e Projetos" for the cooperation in the maintenance of the Helminthological Collection of the "Instituto Oswaldo Cruz" (Proc. no. 43/86/0197/00-31).

REFERENCES

- HARGIS Jr, W. J., 1955a. Monogenetic Trematodes of Gulf of Mexico fishes. Part VI. The superfamilies Polystomatoidea Price, 1936 and Diclidophoroidea Price, 1936. *Trans. Amer. Microsc. Soc.*, 74: 361-377.
- HARGIS Jr, W. J., 1955b. Monogenetic Trematodes of Gulf of Mexico fishes. Part VII. The superfamily Diclidophoroidea Price, 1936 (Continued). *Quart. Jour. Florida Acad. Sci.*, 18: 113-119.
- LINTON, E., 1940. Trematodes from fishes mainly from the Woods Hole region, Massachusetts. *Proc. U. S. Nat. Mus.*, 88: 1-172.
- PRICE, E. W., 1936. *North American monogenetic trematodes*. George Washington Univ. Bull., Summaries Doct. Thesis (1934-1936): 10-13.
- PRICE, E. W., 1961. North American monogenetic trematodes. IX. The families Mazocraeidae and Plectanocotylidae. *Proc. Biol. Soc. Wash.*, 74: 127-156.
- SROUFE Jr, S. A., 1958. *Mazocraeoides olentangiensis* n. sp., a monogenetic trematode on the gills of the gizzard shad, *Dorosoma cepedianum* (Le Sueur). *J. Parasitol.*, 44: 643-646.
- SURIANO, D. M., 1979. Nueva especie de *Mazocraeoides* del Atlántico Sud y aporte a su biología (Monogenea, Polyopisthocotylea). *Neotropica*, 25: 51-58.
- WRIGHT, K. A. & DECHTIAR, A., 1974. Light and scanning electron microscopy of attachment organs of three monogeneans (Monogenoidea: Polyopisthocotylea). *Can. J. Zool.*, 52: 183-193.