

New record of *Meningodora vesca* (Smith, 1887) (Caridea, Oplophoridae) to the Southwestern Atlantic

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Abstract

The Brazilian expedition Oceanprof I and II collected samples from the continental slope of Campos Basin (21°48'S to 22°48'S, Rio de Janeiro) in depths ranging from 1059 to 1649 m. These expeditions sampled six species of Oplophoridae: *Oplophorus spinosus* (Brullé, 1839); *Acanthephyra quadrispinosa* Kemp, 1939; *Janicella spinicauda* (A. Milne Edwards, 1883); *Notostomus elegans* A. Milne Edwards, 1881; *Systellaspis debilis* (A. Milne Edwards, 1881) and *Meningodora vesca* (Smith, 1887) that is a new occurrence to the Southwestern Atlantic. This specimen is described and figured.

Key words: new record, Southwestern Atlantic, *Meningodora vesca*, Oplophoridae.

Introduction

The family Oplophoridae Dana, 1852, is included in the infraorder Caridea Dana, 1852, with others 35 families (Martin and Davis, 2001). The Oplophoridae nowadays includes ten genera and 74 species.

From the Brazilian coast, *Acanthephyra eximia* A. Milne-Edwards, 1881; *Meningodora mollis* Smith, 1882; *Notostomus gibbosus* A. Milne-Edwards, 1881, and *Oplophorus gracilirostris* A. Milne-Edwards, 1881, were recorded by Ramos-Porto and Coelho, (1998; Ramos-Porto *et al.*, 2003). Recently, the REVIZEE program sampled eleven species of Oplophoridae, nine of them new records to the southwestern Atlantic: *Acanthephyra acutifrons* Bate, 1888; *A. quadrispinosa* Kemp, 1939; *A. stylostratis* (Bate, 1888); *Ephyrina benedicti* Smith, 1885; *Janicella spinicauda* (A. Milne-Edwards, 1883); *Notostomus elegans* A. Milne-Edwards, 1881; *O. spinosus* (Brullé, 1839); *Systellaspis debilis* (A. Milne-Edwards, 1881) and *Systellaspis pellucida* (Filhol, 1885) (Cardoso, 2005).

The Oceanprof expeditions sampled five species: *Oplophorus spinosus* (Brullé, 1839); *Acanthephyra quadrispinosa* Kemp, 1939; *Janicella spinicauda* (A. Milne-Edwards, 1883); *Notostomus elegans* A. Milne-Edwards, 1881 and *Systellaspis debilis* (A. Milne-

Edwards, 1881). Besides that, the Oceanprof expeditions sampled *Meningodora vesca* (Smith, 1887), a new record of Oplophoridae to the Southwestern Atlantic. This paper describes and figures *M. vesca*.

Material and Methods

The specimen of this study was provided from the Campos Basin deep sea environmental project, in the Oceanprof II Expedition. During August of 2003 the Oceanprof II Program, using the R/V Astrogroupa, collected samples from the continental slope of Campos Basin (Rio de Janeiro, 21°48'S to 22°48'S) in depths ranging from 1059 to 1640 m. A total of 22 tows were done. The samples were fixed in ethanol and deposited in the Collection of Crustacea of the Museu Nacional, Rio de Janeiro (MNRJ).

All the measurements presented are of the carapace length, taken from the rostrum base to the carapace end. The nomenclature of the cephalic structures was that of McLaughlin (1980) and the setae nomenclature used was that suggested by Watling (1989) and Garm (2004).

Abbreviations used: ai, *appendix interna*; as, antennal spine; brs, branchiostegal spine; goc, gastro-orbital carina; st, stylocerite.

Systematics

Family Opolophoridae Dana, 1852

Diagnosis: Rostrum immovable. Antennular flagella simple, without accessory filament. Mandible with palp; molar and incisor processes not conspicuously separated. Mandibles dissimilar. Maxilliped 3 elongate, not unusually expanded, five segmented, bearing well developed exopod. All pereopods with well developed exopod. Pereopod 1 to 3, at least, bearing strap like epipod with end piece extending perpendicularly into branchial chamber. Pereopod 1 and 2 with well developed chela and undivided carpus. Pereopod 3 to 5 not unusually long, carpus shorter than propodus. Pleopods with *appendix interna*. Probably all species capable of some form of bioluminescence (modified from Chace, 1986).

Genus *Meningodora* Smith, 1882

Meningodora Smith, 1882: 73; Crosnier and Forest, 1973: 43; Chace, 1986: 48.

Diagnosis: Rostrum with more dorsal than ventral teeth. Carapace not denticulate dorsally; with lateral gastro-orbital carina; without hepatic spine. Abdomen dorsally carinate on, at least, somite 3 to 6. Telson superficially blunt posteriorly; not tapering to sharply acute apex; without spinose end piece. Scaphocerite without lateral teeth. Mandible dissimilar, incisor process armed in half length. Pereopods with ischium and merus not broadly compressed. Pereopod 4 with epipod vestigial. *Appendix masculina* on second pleopod. Eggs small to medium-sized and numerous (more than 80) (modified from Chace, 1986).

Meningodora vesca (Smith, 1887)

(Figs. 1-4)

Notostomus viscus Smith, 1886: 189 (*nomen nudum*).

Notostomus vescus Smith, 1887: 676; De Man, 1920: 46; Chace, 1936: 28; 1940: 153; 1947: 21.

Acanthephyra brevirostris Bate, 1888: 751 (not Smith, 1884).

Acanthephyra batei Faxon, 1895: 167.

Acanthephyra Batei Kemp, 1906: 22; De Man, 1920: 41.

Notostomus Batei Balss, 1925: 267.

Meningodora vesca – Crosnier and Forest, 1968: 1130; 1973: 46; Chace, 1986: 50.

Material examined: Oceanprof II Expedition: A-13, 21°53'14"S, 39°51'43"W, 1064 m, 1 female (15.5 mm), MNRJ 19450.

Diagnosis: Carapace with rostrum short, reaching a half of scaphocerite length, ventral margin with two teeth; antennal spine present; branchiostegal spine present, well developed without distinct carina. Abdomen dorsally carinate on somites 3 to 6; abdominal somites 4 to 6 with posteromesial tooth. Female pleopod 1 with endopod leaf like, anterior margin with simple setae, posterior margin with plumose articulated setae. Female pleopod 2 *appendix interna* with numerous plumose setae on lateral margins, distal portion with hook setae.

Description: Carapace with rostrum a half of scaphocerite length, ventral margin slightly convex, with two teeth, dorsal margin with twelve teeth; carapace dorsal margin carinate throughout entire length; antennal spine present; branchiostegal spine present, well developed, without distinct carina; supraorbital and pterygostomial spine absent; cervical groove, suprbranchial carina and hepatic groove absent; gastro-orbital carina present (Fig. 1A). Stylocerite elongate, reaching 2/3 of first article of antennular peduncle, with acute apex (Fig. 1B). Scaphocerite with blunt apex, outer margin with distal tooth (Fig. 1C). Right mandible with palp three-articulated, incisor process with 12 teeth (Figs. 2A-B); left mandible with molar process triangular armed with 10 teeth (Fig. 2A), right mandible with molar process triangular with rows of tubercles (Fig. 2B). Maxilla 1 with two endites, distal endite with numerous stout simple setae on inner margin; basal endite leaf like, with pectinate and plumose setae on inner margin; palp with several plumose setae on rounded apex (Fig. 2C). Maxilla 2 with two endites, distal one rounded, with pectinate setae; basal endite rounded, with pappose and plumose setae on inner margin; endopod 2/3 of endites length, with pappose setae on apex;

scaphognathite with densely plumose setae on all margins (Fig. 2D). Maxilliped 1, endite bilobed, basal lobe with pappose setae; distal lobe with pectinate setae on inner margin and pappose setae on

apex; endopod three-articulated, as long as distal lobe of endite, exopodal lobe with densely plumose setae in all margins (Fig. 2E). Maxilliped 2 endopod with elongate ischium and merus; carpus

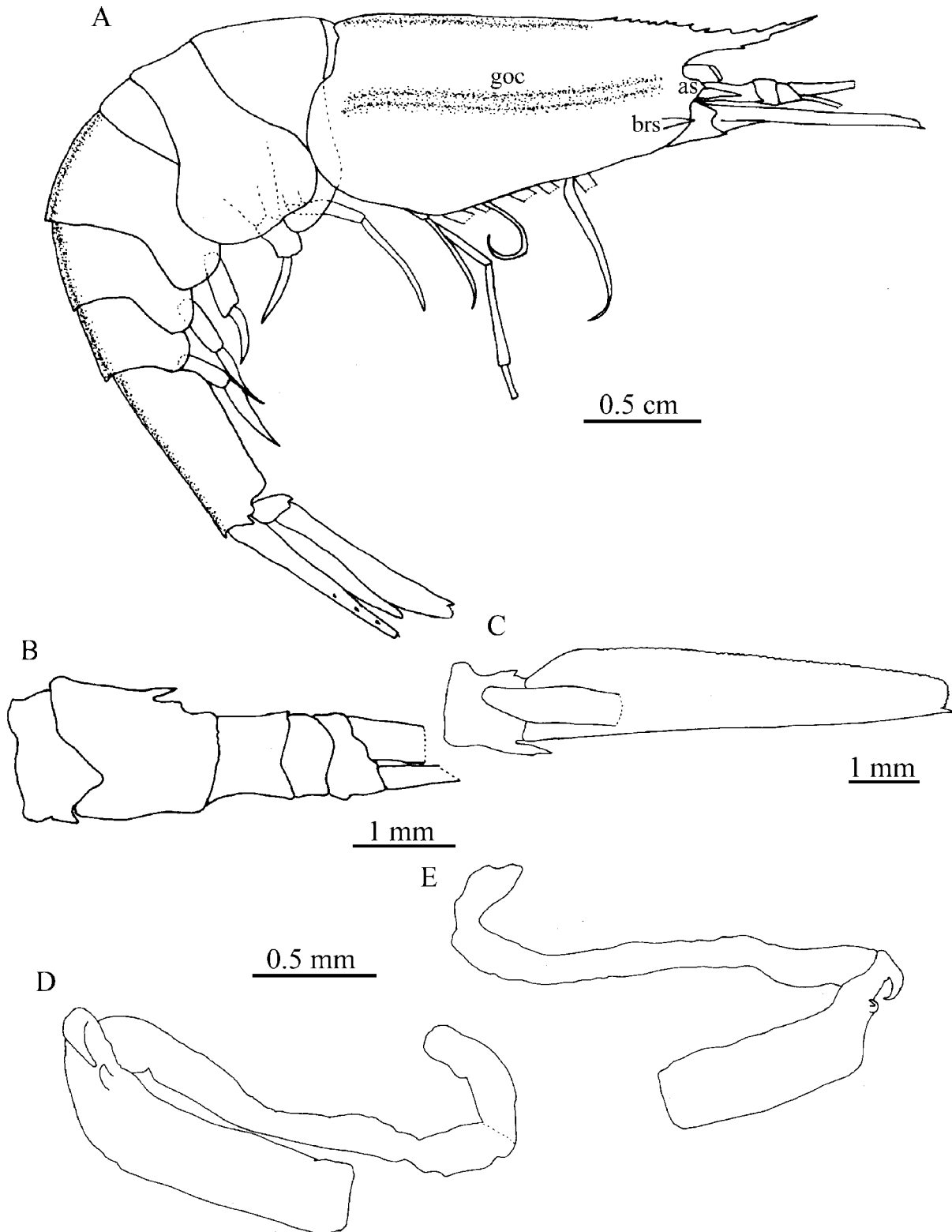


Figure 1. *Meningodora vesca* Smith, 1887, female (15.5 mm), MNRJ 19450. A. Lateral view. B. Stylocerite, dorsal view. C. Scaphocerite, dorsal view. D. Epipod left pereopod 2, lateral view. E. Epipod right pereopod 2, lateral view.

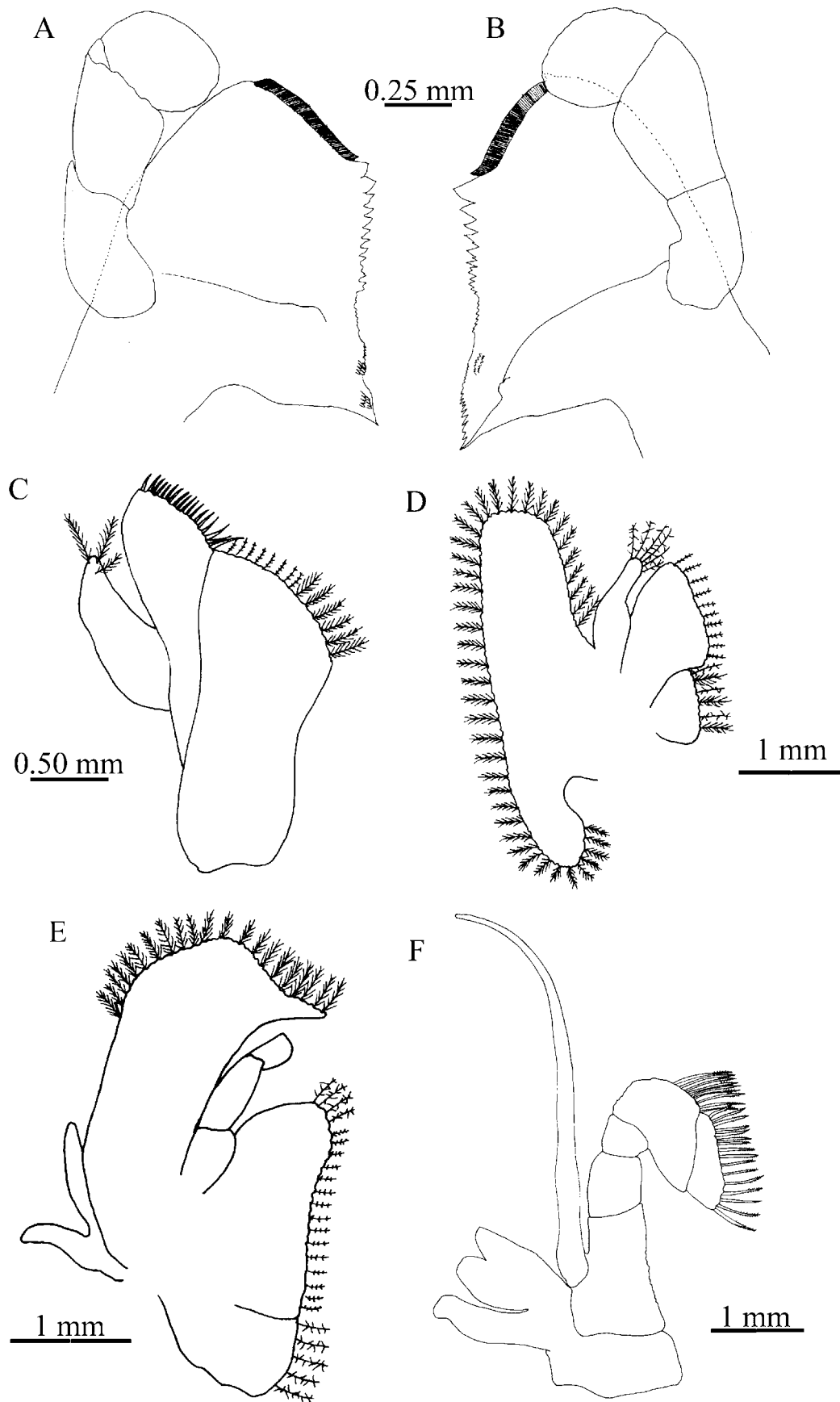


Figure 2. *Meningodora vesca* Smith, 1887, female (15.5 mm), MNRJ 19450. A. Left mandible, dorsal view. B. Right mandible, dorsal view. C. Left maxilla 1, dorsal view. D. Left maxilla 2, dorsal view. E. Left maxilliped 1, dorsal view. F. Left maxilliped 2, dorsal view.

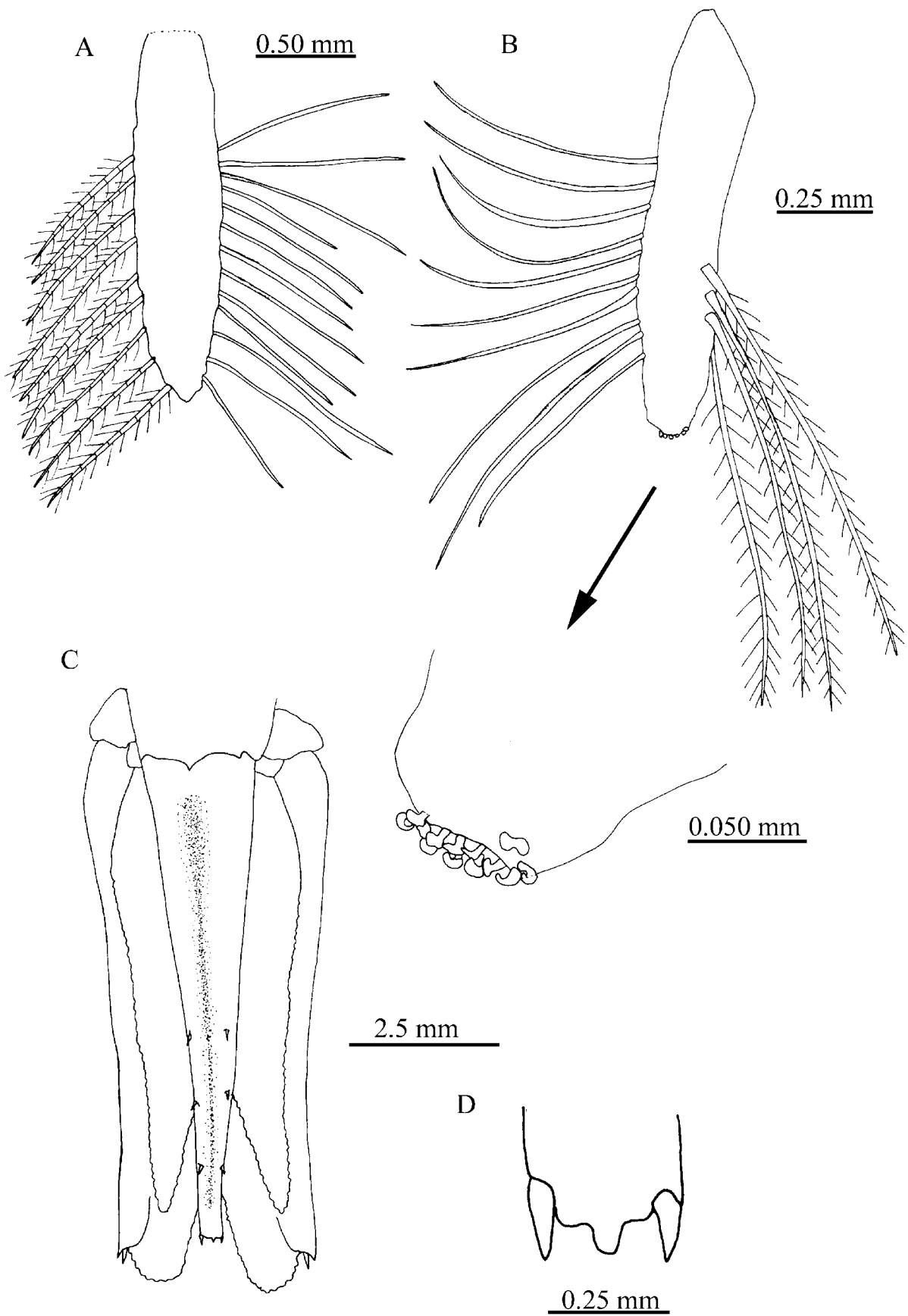


Figure 3. *Menigodora vesca* Smith, 1887, female (15.5 mm), MNRJ 19450. A. Endopod of right pleopod 1. B. *Appendix interna* of right pleopod 2. C. Telson and uropods, dorsal view. D. Telson apex, dorsal view.

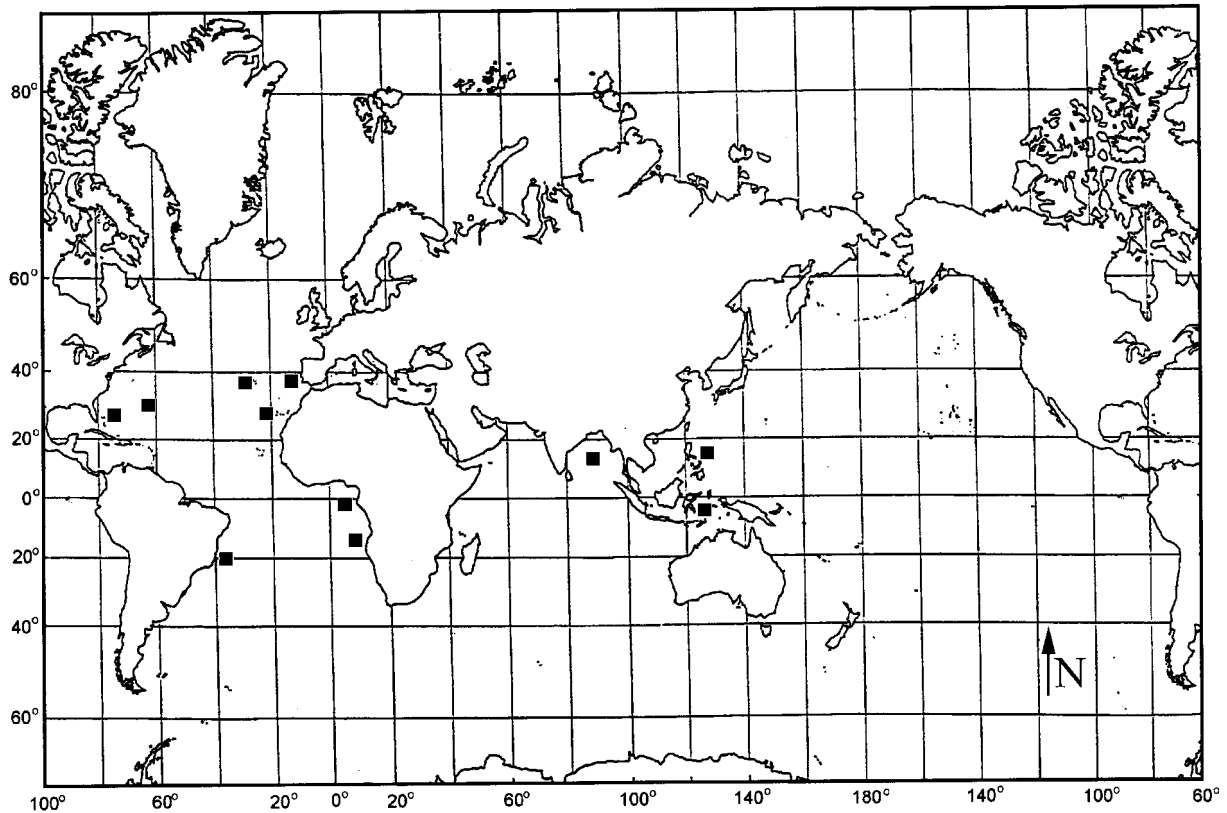


Figure 4. Geographic distribution of *Meningodora vesca* Smith, 1887.

short; propod rounded with pectinate setae on inner margin; dactyl with pectinate setae on inner margin; elongate exopod (Fig. 2F). Epipods with mesial teeth, present on pereopods 1 to 3 (Fig. 1D-E). Abdomen dorsally carinate on somites 3 to 5; somites 4 to 6 with posteromesial tooth; somite 6 at least 1 1/2 times as long as height (Fig. 1A). Female pleopod 1 with endopod leaf like, anterior margin with simple setae, posterior margin with plumose articulated setae (Fig. 3A). Female pleopod 2 *appendix interna* with numerous plumose setae on lateral margins, distal portion with hook setae (Fig. 3B). Exopod of uropod with uncomplete diaresis, and one distal spine on outer margin (Fig. 3C). Telson sulcate in dorsal midline, with three pairs of dorsolateral stout setae and one pair of distal stout setae (Fig. 3C-D).

Distribution: Western Atlantic: Bermudas, Bahamas, Brazil (Rio de Janeiro, 21°53'14"S, 39°51'43"W). Eastern Atlantic: Portugal, Azores Island, Canaries Island, Gabon, Angola. Indian and Pacific: Bay of Bengal, Philippines, Indonesia. Adults probably live in depths between 650 and 2500 m (Chace, 1986; Crosnier, 1987).

Remarks: This species occurs in the Indian, Pacific and Atlantic oceans, and has never been recorded before from Brazilian waters (Fig. 4).

The genus *Meningodora* comprises five species, all of them occurring in the Western Atlantic Ocean. Of these five species, only two (*M. compsa* (Chace, 1940) and *M. vesca* (Smith, 1887)) have the third abdominal somite unarmed. *Meningodora compsa* presents the second abdominal somite dorsally carinate, distinct from *M. vesca* that doesn't have dorsal carina in this somite

The only female of *M. vesca* collected by the Oceanprof II Expedition lost the third maxilliped and pereopods 1 to 5 but the identification was possible using features from carapace, mouth parts and abdomen.

Crosnier and Forest (1973) figured *M. vesca* from Southeastern Atlantic with carapace bearing the rostrum short, reaching a half of scaphocerite length, with twelve dorsal teeth and one ventral tooth, and a strong branchiostegal spine. The Brazilian material differs only in having two ventral teeth on rostrum.

The material examined herein agrees mostly with Chace (1986) diagnosis, based on Philippines

material, in the integument firm; abdomen without dorsal carina on second somite and without dorsal tooth on third somite. Besides that, the Brazilian material agrees with Chace (1986) in the shape of mandibles: both with molar process triangular, the left with teeth and the right without teeth; both with incisor process unarmed in the distal part, with strong teeth in the middle and with small teeth in the basal part. Furthermore, the Brazilian material agrees with Chace (1986) material in the shape of the epipods with the vertical process elongate, almost twice the horizontal process length.

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