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A NEW SPECIES OF *DICHELYNE* (NEMATODA: CUCULLANIDAE) PARASITIZING *POGONIAS CROMIS* (PISCES: SCIAENIDAE) FROM MAR CHIQUITA COASTAL LAGOON, ARGENTINA

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ABSTRACT: A new nematode species *Dichelyne* (*Cucullanellus*) *mariajuliae* n. sp., is described based on specimens collected from the black drum, *Pogonias cromis* (Linnaeus, 1766), from Mar Chiquita coastal lagoon, Buenos Aires Province, Argentina (37°32′S, 57°19′W) (prevalence 75%, mean intensity 3.75). Among *Dichelyne* (*Cucullanellus*), the new species is unique in having the papillae 2 situated at the level of ventral sucker in males and bearing subcuticular ornamentation in the female tail.

As a result of a parasitological survey of estuarine-dependent-marine fish from Mar Chiquita coastal lagoon, several nematodes were collected from the intestines of the black drum, *Pogonias cromis* (Linnaeus, 1766). Examination of the material revealed that these nematodes belong to the genus *Dichelyne* Jägerskiöld 1902 (Cucullanidae) based on the presence of an intestinal cecum and 11 pairs of caudal papillae in males. Nematodes also were assigned to the subgenus *Cucullanellus* Törnquist, 1931 by the presence of a precloacal sucker in males (Petter, 1974). These specimens are described and illustrated in the present article.

MATERIALS AND METHODS

In total, 16 specimens of *P. cromis* (40–60 cm total length) from Mar Chiquita coastal lagoon, Buenos Aires Province, Argentina (37°32′S, 57°19′W) were examined. Fish were caught during January 2004 and January–February 2005. Fish were dissected immediately after capture, and the intestines were removed and examined under a stereoscopic microscope. Parasites were collected and fixed in 4% formaldehyde solution, preserved in 70% alcohol, cleared in lactophenol, and studied and measured using light microscopy. Drawings were made with a drawing tube. For scanning electron microscopy (SEM), specimens were dehydrated using a series of ethanol washes, dried by evaporation with hexamethyldisilazane, coated with gold palladium, and scanned in a JEOL JSM 6460-LV SEM (JOEL, Tokyo, Japan). Measurements are given in millimeters, with the mean followed by a range in parentheses. Caudal papillae nomenclature follows Petter (1974); prevalence and mean intensity were calculated according Bush et al. (1997). The studied material was deposited in the Helminthological Collection of the Museo de La Plata (CHMLP), La Plata, Argentina.

DESCRIPTION

Dichelyne (*Cucullanellus*) *mariajuliae* n. sp.

(Figs. 1–16)

General (10 males and 12 females measured): Small-sized nematodes. Cuticle finely striated throughout. Lateral alae absent. Anterior end rounded, dorsoventrally expanded. Cephalic extremity with usual features of *Dichelyne*, with 2 pairs of prominent cephalic papillae, pair of amphids, inner ring of 3 pairs of small labial papillae not observed. Mouth dorsoventrally slitlike, surrounded by collarette armed with numerous triangular denticles on each side. Pseudobuccal cavity well developed, with internal cuticular lining; esophagus narrow, expanded at both extremities, opening into intestine through small valve; pseudobuccal capsule wider than posterior end. Intestine with ventral cecum of variable length. Nerve ring surrounding esophagus just posterior to pseudobuccal capsule. Deirids situated laterally at level of posterior third of esophagus. Excretory pore slightly posterior to deirids. Left post-deirids postequatorial, right post-deirids generally preequatorial; left post-deirid situated closer to tail than right post-deirid. Tail conical.

Male: Body 5.48 (4.56–6.44) long, maximum width 0.36 (0.26–0.45). Esophagus 0.80 (0.72–0.90) long, 14.67 (13.04–16.93)% of body length, 0.08 (0.08–0.10) wide at base; pseudobuccal capsule 0.12 (0.11–0.14) wide. Intestinal cecum 0.42 (0.33–0.49) long. Distance of nerve ring from anterior extremity 0.19 (0.18–0.22), of excretory pore 0.54 (0.50–0.58), of right deirid 0.49 (0.37–0.69), of left deirid 0.50 (0.36–0.67), of right post-deirid 2.61 (2.37–2.80), of left post-deirid 3.63 (3.16–4.00). Ventral precloacal sucker present, distance from center to posterior body end 0.67 (0.46–0.83). Cloaca prominent. Caudal papillae consisting of 1 medial adcloacal papilla and 11 pairs of papillae: 3 pairs precloacal (pair 1 anterior to ventral sucker, at the level of ventral sucker and pair 3 between sucker and cloaca, closer to former), 4 pairs adcloacal (pairs 5, 6, and 7 subventral; pair 4 lateral situated at level of pair 6, of pair 7, or between them) and 4 pairs of postcloacal (pairs 9, 10 subventral, former near the cloaca, pair 8 lateral at level of pair 10 and 1 lateral [phasmids] anterior to pairs 8 and 10 and situated at 0.09 [0.07–0.10] from posterior extremity). Spicules subequal, left spicule 0.55 (0.45–0.62) long, right spicule 0.55 (0.45–0.63) long, 10.10 (8.41–11.65) % of body length. Gubernaculum Y-shaped 0.07 (0.07–0.08) long; Tail 0.16 (0.13–0.21) long.

Female: Body 6.32 (4.68–8.20) long, maximum width 0.38 (0.27–0.58). Esophagus 0.87 (0.74–1.08) long, 14.16 (11.09–16.85)% of body length, 0.09 (0.07–0.12) wide at base; pseudobuccal capsule 0.12 (0.11–0.16) wide. Intestinal cecum 0.49 (0.41–0.56) long. Distance of nerve ring from anterior extremity 0.21 (0.17–0.28), of excretory pore 0.57 (0.44–0.70), of right deirid 0.52 (0.41–0.64), of left deirid 0.53 (0.43–0.65) of right post-deirid 2.92 (2.22–3.76) (anterior to vulva), of left post-deirid 4.16 (3.32–5.14) (posterior to vulva). Vulva not prominent, slightly postequatorial, distance from anterior body end 3.67 (2.57–4.37), 58.22 (51.37–61.65)% of body length. Ovijector short, directed anteriorly from vulva. Uteri amphidelphic. Eggs in uterus oval, not embryonated, 0.067 (0.056–0.076) long, 0.044 (0.040–0.052) wide. Tail 0.18 (0.15–0.20) long, with a pair of caudal papillae (phasmids) situated at 0.08 (0.07–0.09) from posterior extremity, showing wrinkled subcuticular ornamentation.

Taxonomic summary

Type host: Black drum, *Pogonias cromis* (Linnaeus, 1766) (Pisces: Sciaenidae).

Site: Middle and posterior intestine.

Type locality: Mar Chiquita coastal lagoon, Buenos Aires Province, Argentina (37°32′S, 57°19′W).

Type specimens: Holotype male, CHMLP nr 5520; allotype female, CHMLP nr 5521; paratypes: 4 males and 5 females (CHMLP nr 5522).

Prevalence: 75%

Mean intensity: 3.75 (1–9).

Etymology: The new species is named in honor to the mother of the senior author, María Julia Noordemeer.

Remarks

The new species resembles 6 other members in the subgenus *Cucullanellus* Törnquist, 1931 by having a similar distribution pattern of cau-

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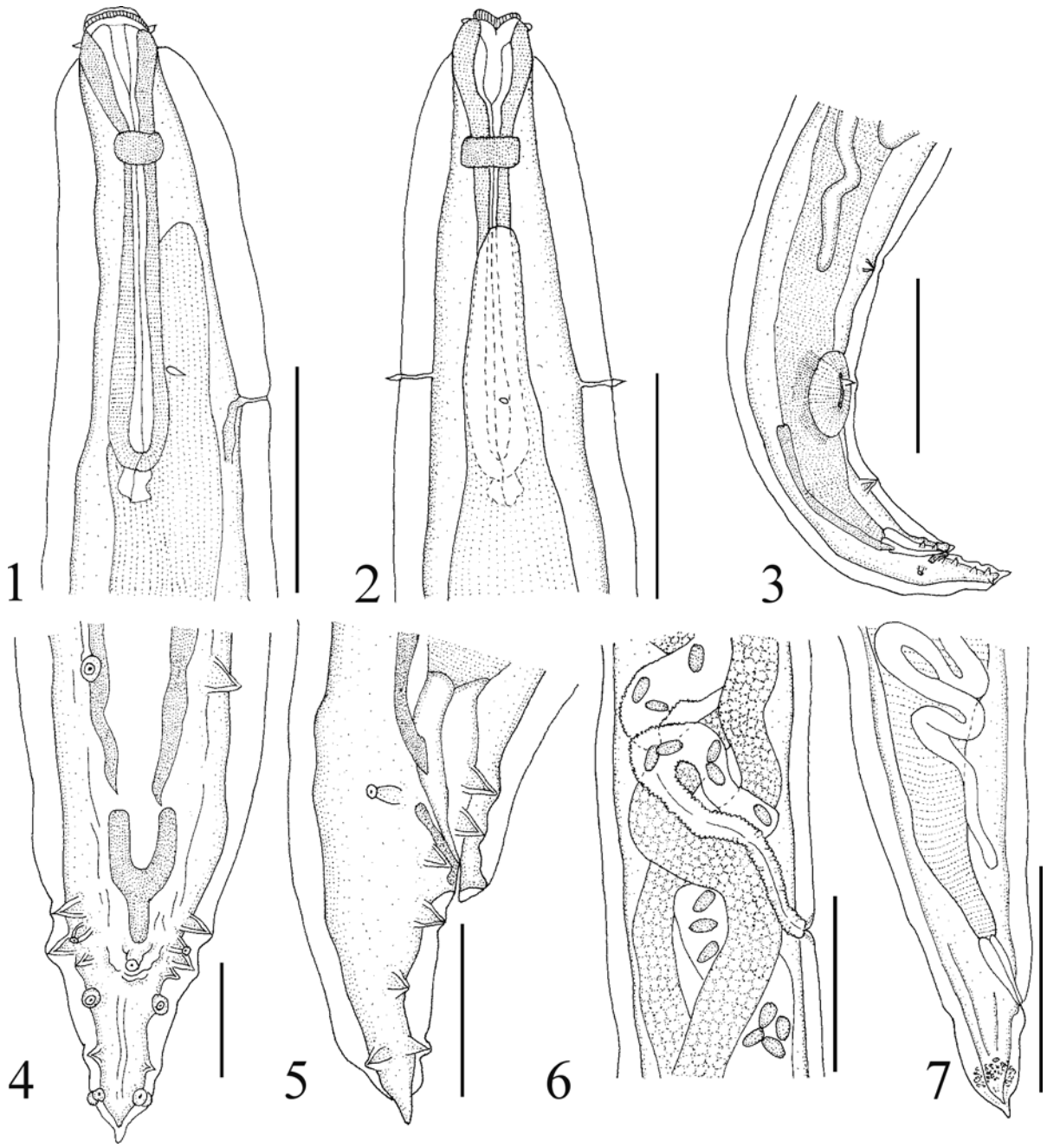
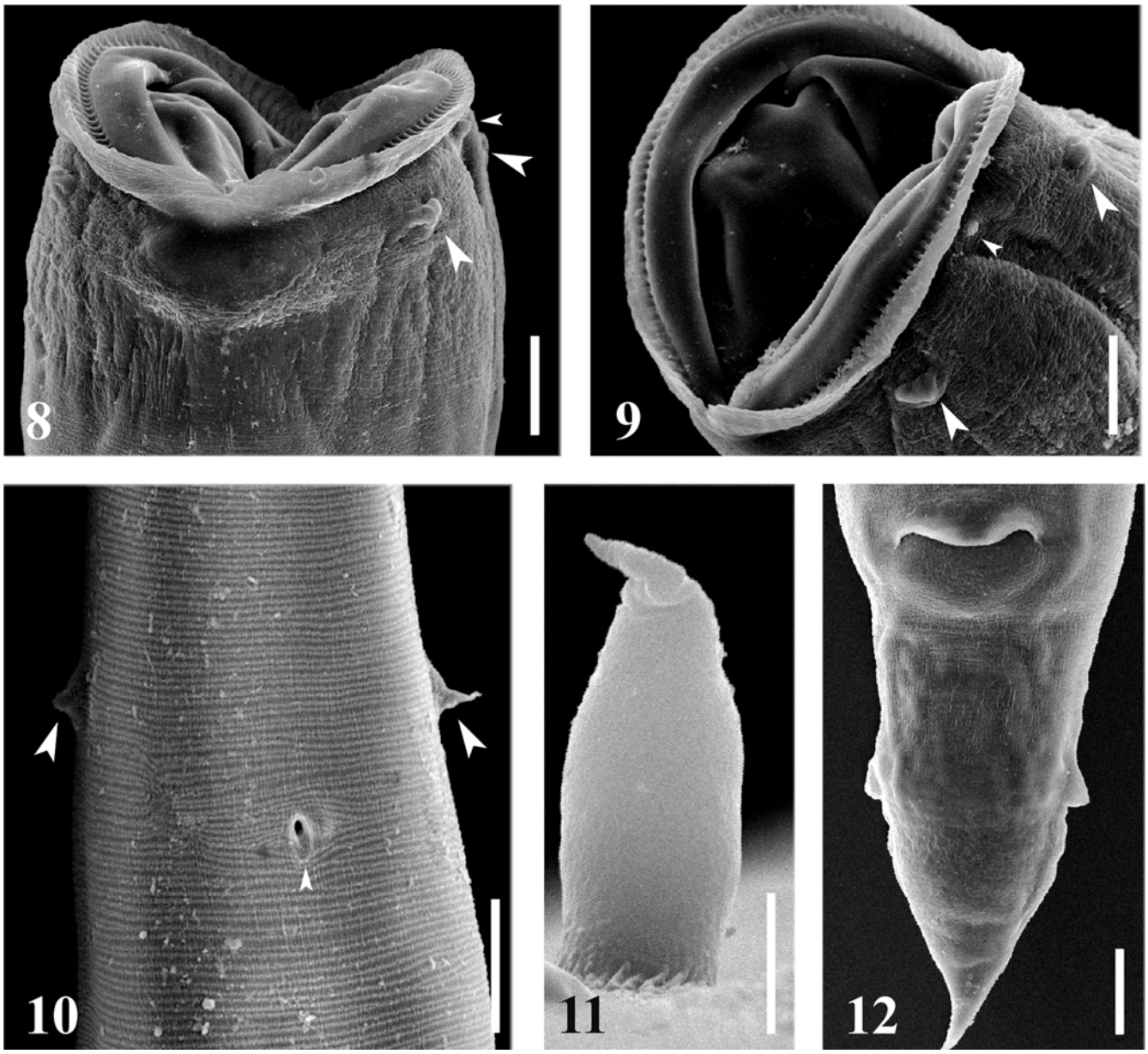


FIGURES 1–7. *Dichelyne* (*C.*) *mariajuliae* n. sp. (**1**) Anterior end, lateral view. (**2**) Anterior end, ventral view. (**3**) Posterior end of male, lateral view. (**4**) Detail of posterior end of male, ventral view. (**5**) Tail of male, lateral view. (**6**) Detail of vulva and vagina, ventral view. (**7**) Posterior end of female, lateral view. Bars = 40 μm (1, 2, 3, 6, and 7) and 10 μm (4 and 5).

dal papillae (papillae 5–7 and 9 forming a subventral line, close to cloaca). These are species are *D.* (*C.*) *dichelyneformis* (Szidat, 1950), *D.* (*C*). *fraseri* (Baylis, 1929), *D.* (*C.*) *elongatus* (Törnquist, 1931), *D.* (*C.*) *abbreviatus* (Rudolphi, 1819), *D.* (*C.*) *adriaticus* (Törnquist, 1931), and *D.* (*C.*) *minutus* (Rudolphi, 1819).

Two of these species have been reported from the southern region of the southwest Atlantic, parasitizing nototheniids *Dichelyne* (*C.*) *dichelyneformis*, a parasite of *Eleginops maclovinus* (Valenciennes, 1830) from Tierra del Fuego, Argentina (Szidat, 1950) and *D.* (*C.*) *fraseri*, parasitic in *Dissostichus eleginoides* Smitt, 1898 from Patagonian waters, Argentina (Gaevskaya et al., 1990). Gaevskaya et al. (1990) did not provide the description of *D.* (*C.*) *fraseri*. Thus, comparisons were made with the description of *D.* (*C.*) *fraseri* given by Zdzitowiecki and Cielecka (1996) from several Antarctic and sub-Antarctic nototheniid fishes. Both species differ from the new species by having larger spicules and excretory pore and deirids located at level of nerve ring.

Dichelyne (*C.*) *elongatus*, a common parasite of *Micropogonias furnieri* (Desmarest, 1823) from South American Atlantic waters (Pinto et al., 1992; Sardella et al., 1995; Pereira and Costa, 1996; Alves and Luque, 2001), can be distinguished from the new species by having larger spicules. After reexamination of type specimens, Vicente et al. (1989) regarded *D.* (*C.*) *amaruincai* (Freitas, Vicente and Ibañez, 1969), a parasite of *Paralonchurus peruanus* (Steindachner) from Peru (Freitas et al., 1969), as a junior synonym of *D.* (*C*). *elongatus*. Later, Pereira and Costa (1996) redescribed *D.* (*C.*) *amaruincai* from samples of *M. furnieri* from Brazil, revalidating this species and differing it from *D.*

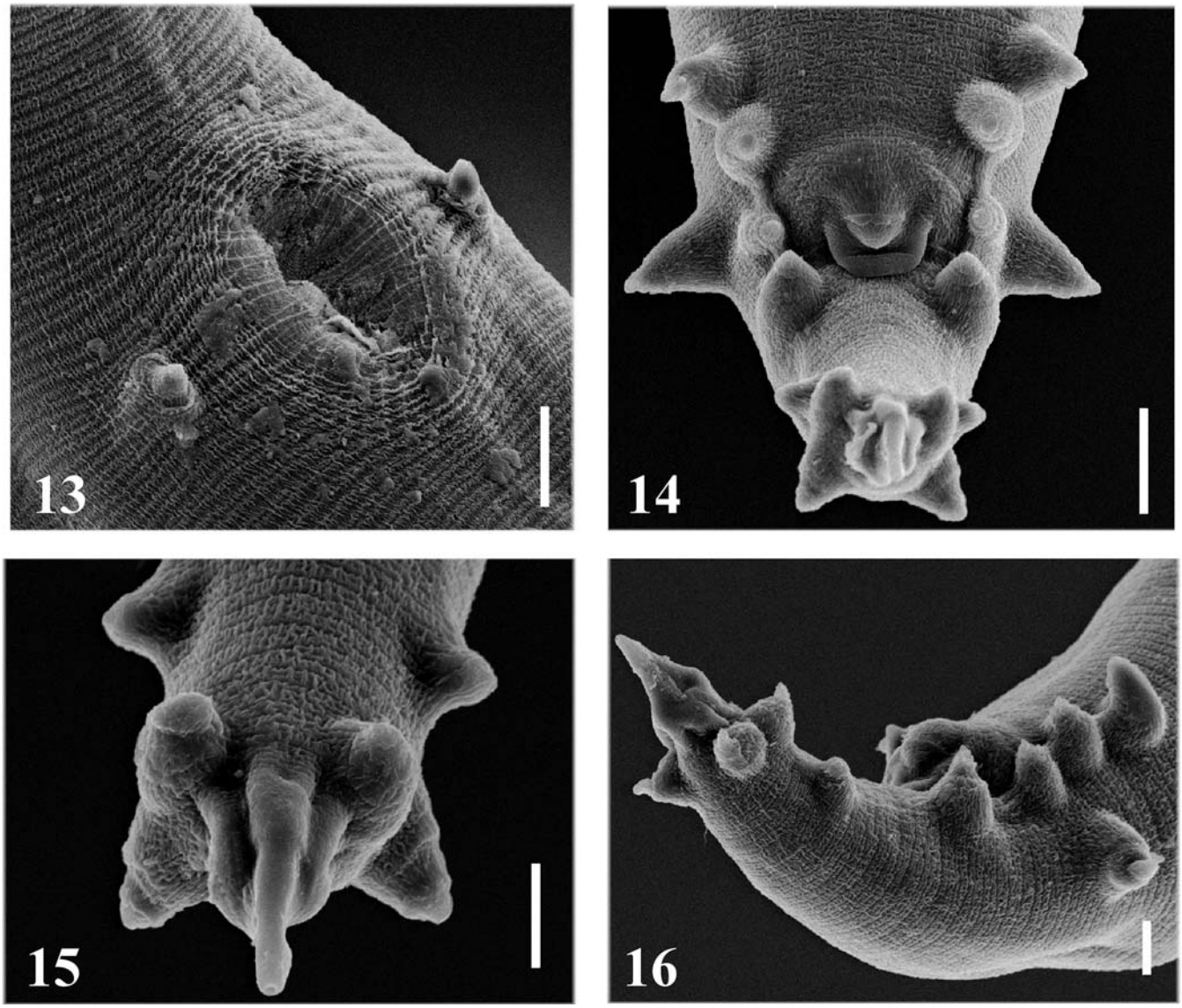


FIGURES 8–12. *Dichelyne* (*C.*) *mariajuliae* n. sp. (**8**) Anterior end, ventral view, large arrows showing cephalic papillae, small arrow showing amphid. (**9**) Anterior end, lateral view, large arrows showing cephalic papillae, small arrow showing amphid. (**10**) Excretory pore region, ventral view, small arrow showing excretory pore, large arrows showing deirids. (**11**) Detail of deirid. (**12**) Tail of female, ventral view. Bars = μm (8, 9, and 12), 50 μm; (10), and 5 μm (11).

(*C.*) *elongatus* based on inconclusive differences such as the presence of deirids and the level of bifurcation of the uterus. The presence of deirids has been obviously overlooked by both Vicente et al. (1989) and Pereira and Costa (1996) in specimens of *D.* (*C.*) *elongatus*. Furthermore, the description of *D.* (*C.*) *amaruincai* by Pereira and Costa (1996), based on dehydrated, stained, and mounted material is poor, and the measurements are evidently erroneous; therefore, both species from *M. furnieri* from Brazil are considered as belonging to a single species.

Dichelyne (*C.*) *abbreviatus*, a parasite of *Umbrina cirrosa* (Linnaeus, 1758) from Italy, differs from the new species in having shorter esophagus and larger spicules (Orecchia and Paggi, 1964). *Dichelyne* (*C.*) *adriaticus*, a parasite of *Chrysophrys aurata*, actually *Sparus aurata* (Linnaeus, 1758), shows smaller body size (Törnquist, 1931). *Dichelyne* (*C.*) *minutus* (Rudolphi, 1819), a common parasite of pleuronectid fishes from Europa shows a smaller body size, larger spicules (0.70–0.94), and the excretory pore posterior to the esophagus end (Fagerholm, 1982; Moravec, 1994).

At the present, in the southwest Atlantic, 2 other species of the subgenus *Cucullanellus* have been reported: *D.* (*C.*) *travassosi* (Guimarães and Cristofaro, 1974), a parasite of *Halichoeres radiatus* (Linnaeus, 1758) and *Balistes vetula* Linnaeus, 1758 from Salvador, Bahia State, Brazil (Guimarães and Cristofaro, 1974) and *D.* (*C.*) *szidati* Timi and Sardella, 2002, a parasite of *Acanthistius brasilianus* (Valenciennes, 1828) from Mar del Plata, Argentina (Timi and Sardella, 2002). *Dichelyne* (*C.*) *travassosi* can be distinguished from the new species by having a smaller body size, markedly longer spicules, 2 intestinal ceca (according to figures in the original description), and 7 pairs of caudal papillae, although the distribution pattern of caudal papillae is difficult to discern in the figures and the authors probably overlooked the remaining 4 pairs. *Dichelyne* (*C.*) *szidati* differs from the new species in



FIGURES 13–16. *Dichelyne* (*C.*) *mariajuliae* n. sp., male. (**13**) Detail of ventral sucker and papillae 2. (**14**) Tail, ventral view. (**15**) Detail of tail tip. (**16**) Tail, lateral view. Bars = 20 μm (13 and 14) and 10 μm (15 and 16).

having larger body and spicules, the excretory pore situated posterior to esophagus-intestine junction, and the pair 9 of caudal papilla not displaced to the cloaca and located posterior to deirids.

Furthermore, the new species is the unique member of the subgenus having the papillae 2 situated at level of the ventral sucker in males and bearing subcuticular ornamentation in the female tail. Based on these differences, a new species *Dichelyne* (*Cucullanellus*) *mariajuliae* is proposed.

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