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NEOPARASEURATUM TRAVASSOSI N. G., N. SP. (NEMATODA: QUIMPERIIDAE), A NEW PARASITE FROM THORNY CATFISH *PTERODODAS GRANULOSUS* IN BRAZIL

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A new nematode genus and species, Neoparaseuratum travassosi *n. g., n. sp., is described from the intestine of the freshwater thorny catfish,* Pterodoras granulosus *(Valenciennes), from the Paraná River, Brazil. This seuratoid nematode species represents a new genus of the family Quimperiidae, being characterized mainly by the presence of numerous narrow longitudinal bands of inflated cuticle extending along the cephalic region of the body, small deirids, postoesophageal position of the excretory pore, relatively short (0.159-0.303 mm), equal spicules and a gubernaculum, the absence of caudal alae and a preanal sucker in the male, and by some other features.*

Key words: *Neoparaseuratum travassosi* n. g., n. sp. – Nematoda – Quimperiidae – *Pterodoras granulosus*

During studies on the parasite fauna of fishes of the Paraná River in Brazil, carried out by the Brazilian co-authors in 1985, a few specimens of a previously undescribed nematode species were collected from the intestine of the thorny catfish Pterodoras granulosus. Since this parasite species exhibits unique morphological features, being considerably different from the most related forms of the family Quimperiidae, creation of an independent genus *Neoparaseuratum* n. g. is now proposed to accommodate it.

MATERIALS AND METHODS

The nematode specimens were fixed and stored in Railliet and Henry's fluid. Two specimens (one male and one female _ holotype and allotype) were stained with carmine of Langeron, dehydrated and mounted as permanent preparations in Canada balsam. Unstained specimens were cleared with glycerine for examination. Drawings were made with the aid of a Zeiss microscope drawing attachment. All measurements are given in millimeters. For examination of one specimen in SEM, the nematode was postfixed in 1% OsO_4, dehydrated through an ethanol series and aceton and then subjected to critical point drying. The specimen was coated with gold and examined with the Tesla BS-300 electron microscope at an accelerating voltage of 15 kV.

RESULTS

Superfamily Seuratoidea Chabaud, Campana-Rouget et Brygoo, 1959. Family Quimperiidae Gendre, 1928.

Genus *Neoparaseuratum* n. g.

Diagnosis: Quimperiidae, Quimperiinae. Head end rounded; mouth hexagonal, surrounded by six ridges radiating from mouth margin; four submedian cephalic papillae and two lateral amphids present. Oesophagus long, undivided, its posterior of greater diameter than anterior; three small oesophageal teeth present. Cephalic region of body surrounded by numerous longitudinal bands of inflated cuticle. Deirids small, at oesophagus level; excretory pore postoesophageal. Male: caudal alae absent, oblique muscle bands in preanal region present. Spicules equal, short gubernaculum present. Female: vulva, postequatorial, uterus opposed. Eggs nonembryonated in uteri. Intestinal parasites of South-American freshwater fishes.

Type- and the only species: *N. travassosi* n. sp.

Neoparaseuratum travassosi n. sp.
(Figs. 1-3)

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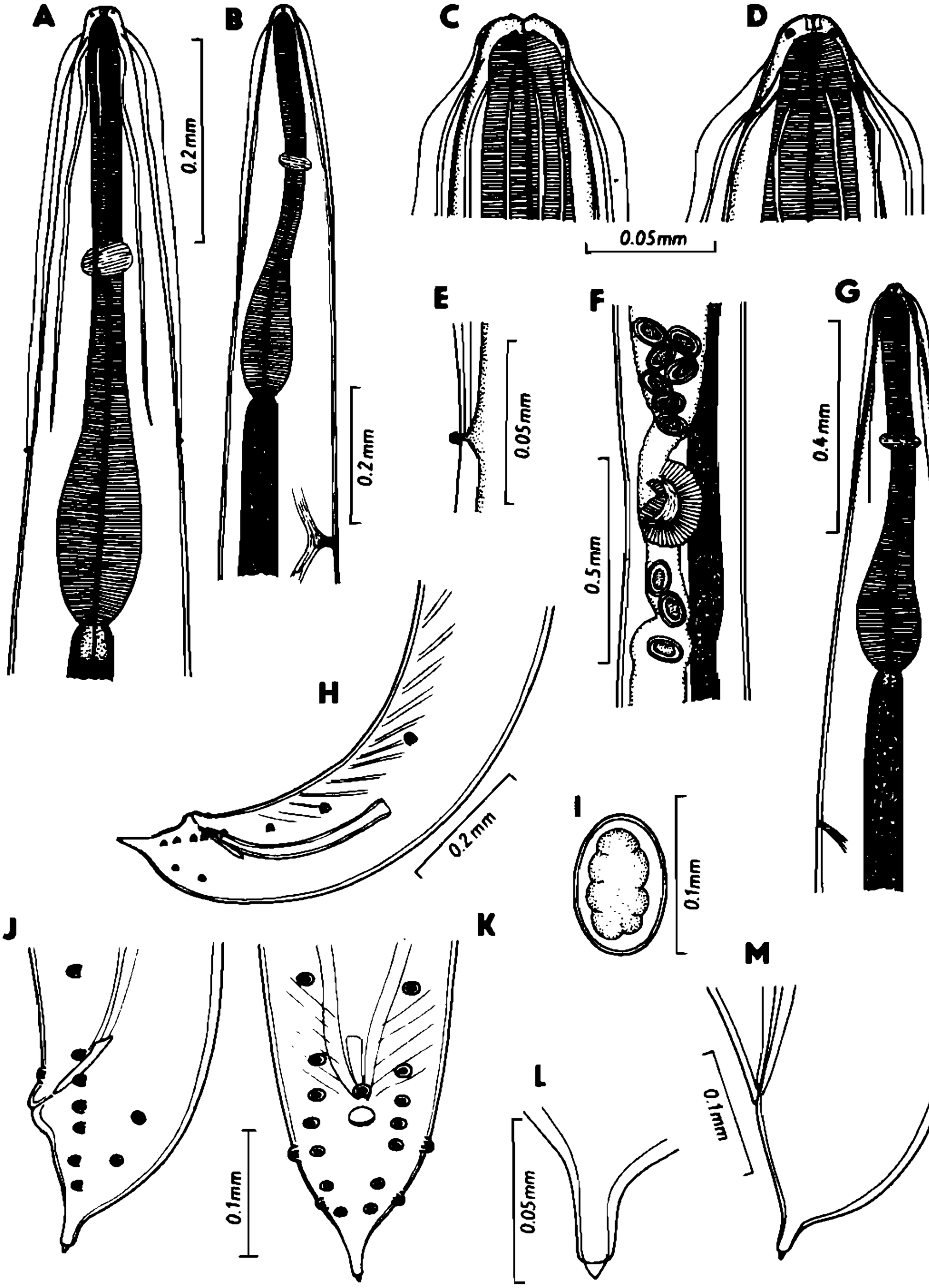


Fig. 1: *Neoparaseuratum travassosi* n. g., n. sp. A, B: anterior part of male body, dorsoventral and lateral views. C, D: head end of male, lateral and dorsoventral views. E: deirid. F: region of vulva. G: anterior end of gravid female, lateral view. H: posterior end of male. I: egg. J, K: tail of male, lateral and ventral views. L: tail tip of female. M: tail of female.

Description: medium sized nematodes; females larger than males. Cuticle smooth, forming 12-14 narrow longitudinal bands of inflated cuticle surrounding cephalic region of body and extending from approximately anterior end of oesophagus posteriorly far behind nerve ring level; their breadth gradually diminishing posteriorly. Head end rounded; oral opening hex-

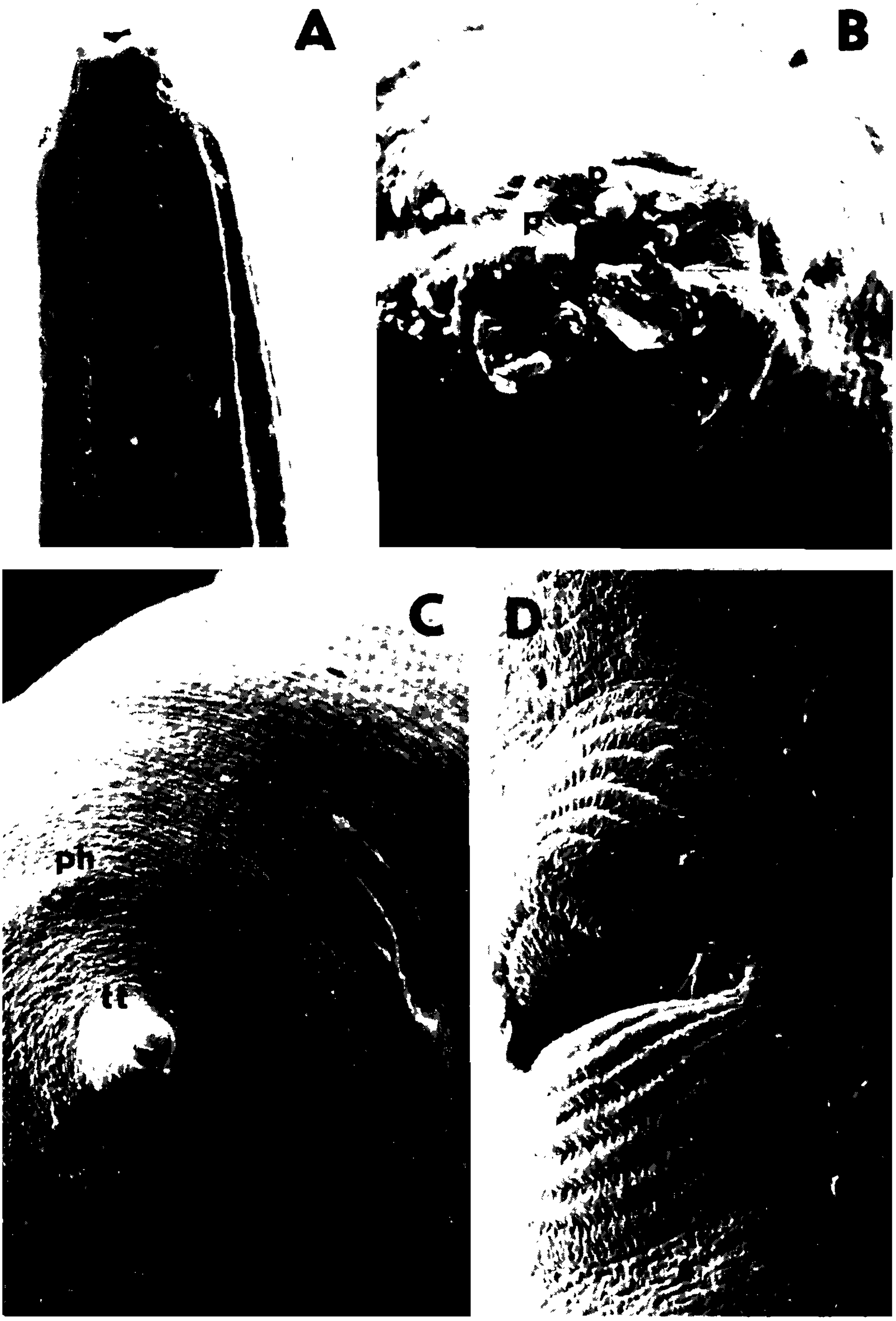
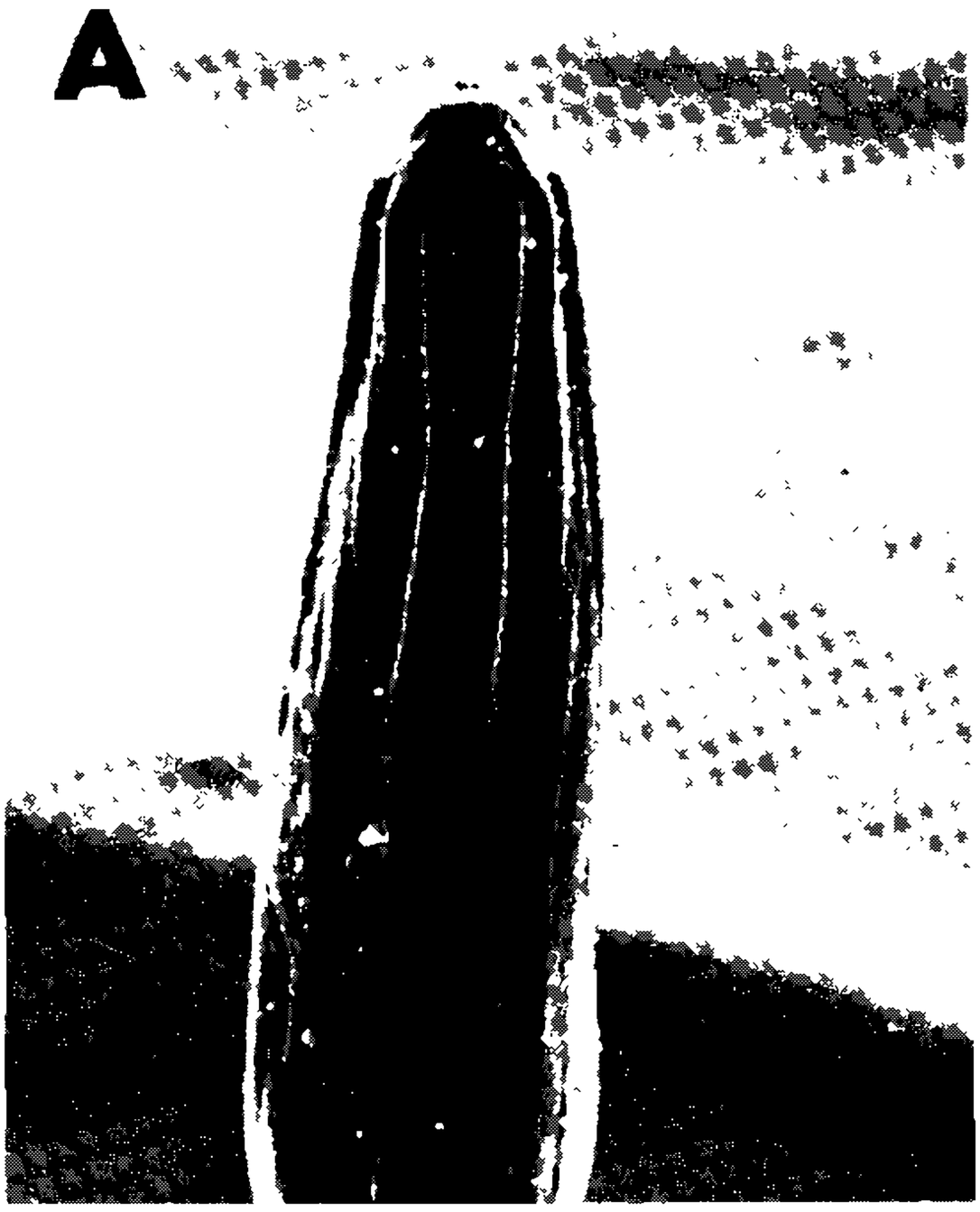
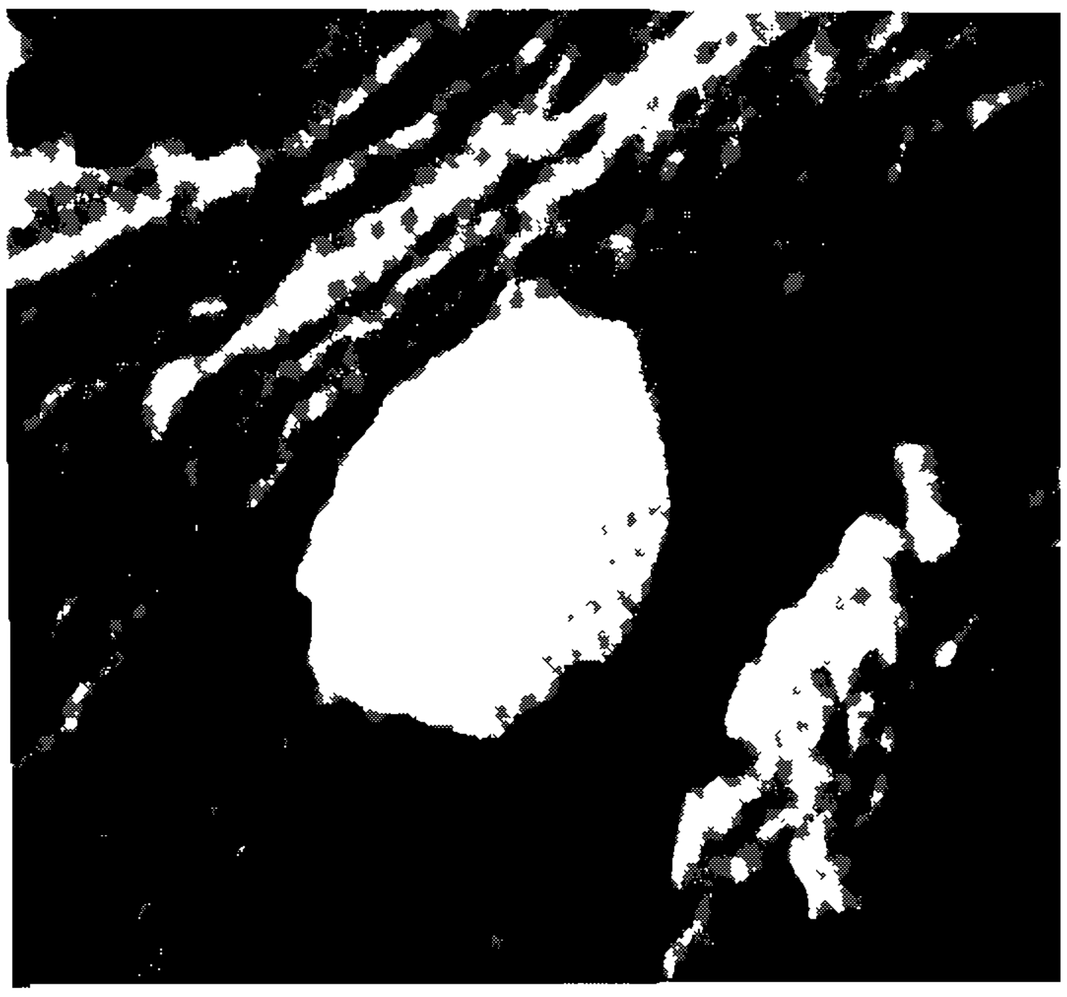


Fig. 2: *Neoparaseuratum travassosi* n. sp. – female. A: anterior end of body with distinct longitudinal bands of inflated cuticle (x 560). B: apical view of head end with distinct radial ridges, mouth papillae (p) and amphids (am) (x 2200). C: apical view of tail; note tail tip (tt), phasmid (ph) and anus (a) (x 1500). D: vulva (x 1560).





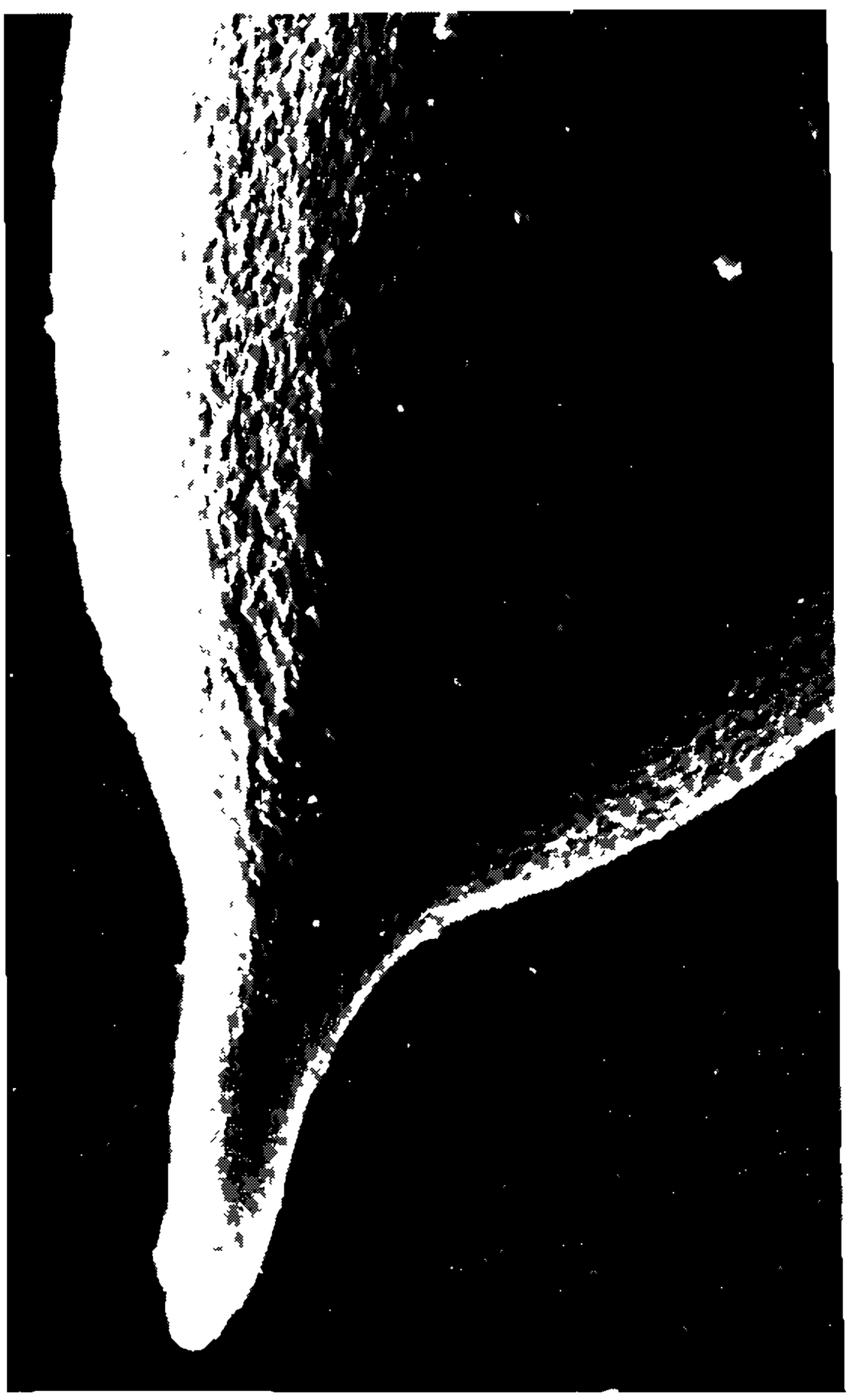


Fig. 3: *Neoparaseuratum travassosi* n. sp. – female. A: anterior end of body (x 270). B: deirid (x 11700). C: phasmid (x 10400). D: vulva (x 710). E: tail (x 1690).

agonal, surrounded by six ridges radiating from mouth margin; four comparatively large submedian papillae and two smaller lateral amphids present. Buccal cavity weakly developed. Oesophagus undivided, muscular throughout, with three small not well distinguished oesophageal teeth at anterior end; anterior part of oesophagus narrow, almost cylindrical, posterior part much broader. Oesophagus opening into intestine through well developed valvae. Nerve ring encircling oesophagus at its anterior half. Small deirids situated at level of expanded part of oesophagus, excretory pore located far behind oesophagus end level. Tail with narrowed posterior part; conical tail tip separated by cuticular constriction.

Male (3 specimens; measurements of holotype in parentheses): length of body 3.14-6.74 (6.74), maximum width 0.122-0.231 (0.231). Cephalic cuticular bands 12-14 (12) in number, their maximum height being 0.006-0.015 (0.015). Height of oral ridges 0.006 (0.006), size of buccal cavity in two larger males 0.009 x 0.009-0.012 (0.009 x 0.012). Length of oesophagus 0.449-0.680 (0.680), its width at anterior part 0.033-0.042 (0.042), at posterior part 0.057-0.105 (0.105). Nerve ring, deirids and excretory pore 0.210-0.318 (0.318), 0.378-0.546 (0.546) and 0.513-0.938 (0.897), respectively, from anterior extremity. Tail conical, short, with narrowed posterior end and separated tip; length of tail 0.111-0.129 (0.129), of its posterior narrowed part 0.036-0.039 (0.039). Cloacal lips somewhat elevated. Preanal region with distinct oblique muscle bands; preanal sucker absent. Caudal papillae: 5 pairs of subventral preanal papillae, 1 pair of adanal papillae, and 5 pairs of postanal papillae of which three pairs being subventral and two pairs lateral; in addition to paired papillae, one median odd papilla present anterior to cloacal opening. Spicules simple, equal, 0.159-0.303 (0.303) long; their proximal ends blunt, distal ends pointed. Small gubernaculum 0.060-0.075 (0.069) long present.

Female (2 specimens; measurements given for allotype): body length of gravid female 11.40, maximum width 0.381. Cephalic cuticular bands 12 in number, their maximum width being 0.015. Height of oral ridges 0.006, size of buccal cavity 0.009 x 0.009. Length of oesophagus 0.843, its width at anterior part 0.045, at posterior part 0.135. Nerve ring, deirids and excretory pore 0.354, 0.694 and 1.20, respectively, from anterior extremity. Tail short, relatively broad, with narrowed posterior end and separated conical tip; length of tail 0.141, of its posterior narrowed part 0.036. Pair of small lateral phasmids present near narrowed posterior end of tail. Vulva situated 7.24 from anterior end of body; vulvar lips with distinct tranverse ridges. Vagina short, muscular, directed anteriorly. Uterus amphidelphic. Anterior ovary reaching anteriorly almost to oesophagus end, posterior ovary posteriorly up to rectum. Eggs thin-walled, oval, nonlarvated; content of some of them cleaved into morula stage. Size of eggs 0.090-0.105 x 0.060-0.066.

Type host: thorny catfish *Pterodoras granulosus* (Valenciennes) (Doradidae, Siluriformes); local name "armado" or "mandi-capeta".

Localization: intestine.

Type locality: Paraná River near Guaira, Paraná State, Brazil (September – October 1985).

Deposition of types: Instituto Oswaldo Cruz, Rio de Janeiro (holotype, allotype and paratype – Cat. No. 32.722 a-c); Institute of Parasitology, Czechoslovak Academy of Sciences, Ceské Budejovice (paratype – Cat. No. N – 578).

Etymology: the generic name expresses affinities to genus *Paraseuratum* and the specific name is in honour of Prof. Lauro Travassos whose pioneering works contributed greatly to the knowledge of freshwater fish nematodes in Brazil.

DISCUSSION

The nematode family Quimperiidae includes the parasites of fishes, rarely of amphibians. Chabaud (1978) reported 11 valid genera in this family, but several additional genera have been established since (see e. g. Naidu & Thakare 1981; Baker et al., 1987; Jones & Gibson 1987; Petter, 1987). Most of them are characteristic of the presence of large lateral alae, cephalic vesicle, preanal sucker or caudal alae in the male, the features that are absent in *Neoparaseuratum* n. g. The unique morphological feature distinguishing *Neoparaseuratum* from all the remaining quimperiid genera is the presence of narrow longitudinal bands of inflated cuticle on the cephalic region.

Considering other features, *Neoparaseuratum travassosi* n. sp. is most similar to the

South American species of the genus *Paraseuratum* Johnston et Mawson, 1940; two species of this genus, *P. albidum* Kloss, 1966 and *P. soaresi* Fabio, 1982, are parasitizing fishes of the families Characidae and Erythrinidae (Characoidei) in Brazil and Ecuador (Kloss 1966, Fabio 1982, Petter 1987). In contrast to them, *N. travassosi* has not a bulbously inflated anterior end of the oesophagus, its excretory pore is situated behind the oesophagus end (at short distance below the nerve ring in *Paraseuratum* spp.) and an unpaired preanal papilla is present in the male (this is absent in *Paraseuratum*).

The recently described genus *Touzeta* with the only species, *T. ecuadoris* Petter, 1987, parasitic in Cichlidae in Ecuador (see Petter, 1987), resembles also somewhat *Neoparaseuratum,* but differs distinctly from it in the shape and structure of the oesophagus (oesophagus distinctly divided, its anterior end bulbously inflated) and mouth, in the presence of a preanal sucker in the male, the more elongate shape of the tail, and some other features.

By some features (e. g., the shape of the tail, character of the oesophagus, spicules), *Neoparaseuratum* resembles also members of the genera *Subulascaris* Freitas & Dobbin, 1957 and *Chabaudus* Inglis & Ogden, 1965 parasitic in amphibians. However, in contrast to the former, *Subulascaris* and *Chabaudus* are noted for the presence of a well developed cephalic vesicle and a precloacal sucker in the male.

The present material consisted of only five specimens of which two had been previously mounted as stained permanent preparations in Canada balsam and one female specimen had been used for SEM study. Although the latter was not clean enough to recognize in detail its mouth structure, it is apparent from the micrograph that the mouth opening is hexagonal, surrounded by six radial ridges bearing four cephalic papillae and two amphids. Similar cephalic ridges were described by Arthur and Margolis (1975) in *Ichthyobronema hamulatum,* a nematode species belonging to the same family. Since only two specimens remained unmounted, it would not be reasonable to cut them for additional "en face" examination and, accordingly, their mouth elements were studied only in lateral and dorsoventral views. Nevertheless, the general morphology of this species shows clearly that this is a representative of a new genus.

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