

## *Calomicrolaimus rugatus* n. gen., n. sp. (Desmodoridae, Nematodes) from a sandy beach in Colombia

By

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With 1 figure

### Summary

*Calomicrolaimus rugatus* gen. n., sp. n. (Microlaiminae, Desmodoridae) from a sandy beach of the Atlantic coast of Colombia is described. The new genus possesses three outstanding features: The male amphids are smaller than the female ones and have a rodlike corpus gelatum; the males have conspicuous cervical setae, and they have special ventral thickenings of the body annules in the preanal region.

### Resumen

Se describe *Calomicrolaimus rugatus* gen. n., sp. n. (Microlaiminae, Desmodoridae) de una playa arenosa de la Costa Atlántica Colombiana. El nuevo género presenta tres características especiales: dimorfismo sexual especial de los anfídios, machos con cerdas cervicales especiales atrás de la cabeza y una prominencia ventral de cada anillo corporal en la región preanal.

### Material and methods

The samples were taken using a plastic tube (inner surface 10 cm<sup>2</sup>). The fauna being killed with 5% formalin was extracted from the sand some minutes later by a combination of decanting and sieving, using a 1-liter-vessel of plastic and a 53  $\mu$ m sieve. After some weeks the worms were transferred to a solution of 100 parts 30% ethanol and 3 parts glycerin. The ethanol and the water were allowed to evaporate, leaving the worms in pure glycerin. The drawings were made with an "Orthoplan" microscope from Leitz with drawing tube. Holotype and paratypes will be deposited in the "Nematodensammlung des Instituts für Meeresforschung in Bremerhaven" and registered as No. 497.

*Calomicrolaimus* n. gen.

Microlaiminae (Desmodoridae). Cuticle annulated; conspicuous cervical setae in the head region of the males; male amphids with a rodlike corpus gelatum and smaller than the female ones; ventral thickenings of the body annules in the preanal region of the males; the remaining characteristics agreeing with those of *Microlaimus*.

Type species: *Calomicrolaimus rugatus* n. gen., n. sp.

*Calomicrolaimus rugatus* n. gen., n. sp.

(Fig. 1 a—e)

Material studied: ♂<sub>1</sub> (holotype), ♀<sub>1</sub>, and 19 ♂♂, 13 ♀♀, 20 juv. from Isla Salamanca (in the west of Ciénaga, near Santa Marta, Atlantic Coast of Colombia), extended sand beach, zone of outrunning waves, 0—15 cm deep in the sand, march 1st 1974.

Measurements:

♂<sub>1</sub>: L = 630 μm; a ≈ 31; b = 6,1; c = 7,7; Spic. = 18 μm.

♂: L = 610 μm; a ≈ 27; b = 6,4; c = 7,5; Spic. = 18 μm.

♂: L = 600 μm; a ≈ 27; b = 6,3; c = 7,7; Spic. = 18 μm.

♀<sub>1</sub>: L = 585 μm; a ≈ 23; b = 6,2; c = 7,4; V = 48 %.

♀: L = 630 μm; a ≈ 23; b = 6,6; c = 7,9; V = 47 %.

The head is attenuated fingerlike in both sexes and in the juveniles. The posterior half of the oesophagus region is dilatated in the dorsal part. The cuticle is distinctly striated. The body setae are reduced to minute papillae of less than 0,5 μm length. Only in the males occur stout, thin walled cervical setae between the anterior end of the body and the amphids, arranged in the following pattern: 1 ventral, 4 subventral and 8 subdorsal setae. Some males have 1 or 2 additional cervical setae. The head bears 6 minute labial papillae, 6 setiform cephalic papillae of 1 μm length and 4 long cephalic setae. The male amphids are smaller and thicker walled than the female and juvenile ones. Only in the males, the corpus gelatum of the amphids is rodlike and variabel in length (fig. 1 a and b). The buccal cavity contains a medium sized dorsal tooth and a minute ventral or subventral one. The oesophagus terminates in a pyriform bulb.

The equal sized spicula and the gubernaculum are well cuticularised. In the preanal region, the males bear one thin walled seta, two supplements and an almost 100 μm long row of ventral thickenings of the body annules (fig. 1 b and c). There are two outstretched testes, the posterior being much shorter than the anterior one (fig. 1 b). The ovaries are paired and outstretched. The vulva is weakly cuticularised. The tail contains three caudal glands and is weakly bent leftward.

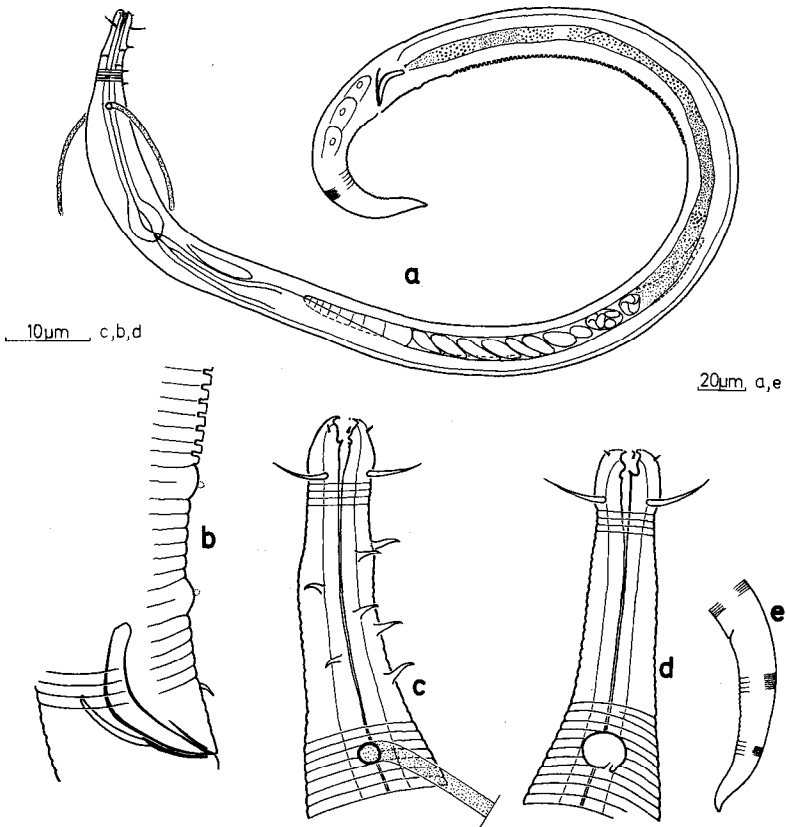


Fig. 1. *Calomicrolaimus rugatus*. a) ♂<sub>1</sub> total; b) spicular region of the ♂<sub>1</sub>; c) head of the ♂<sub>1</sub>; d) head of the ♀<sub>1</sub>; e) tail of the ♀<sub>1</sub>.

### Discussion

There are three outstanding features in *Calomicrolaimus* which are unique not only within the subfamily Microlaiminae but also within all known freeliving marine nematodes. These features are the conspicuous cervical setae in the males, the ventral thickenings of the body annules in the preanal region of the males, and the special sexual dimorphism of the amphids (male amphids smaller than the female ones; only male amphids with a rodlike corpus gelatum).

There are only very few species in which the male amphids are smaller than the female ones: Except in the present species it is known

from *Metepsilonema limbatum* LORENZEN 1973 and *M. laterale* LORENZEN 1973. These two species, however, do not have a rodlike corpus gelatum. A rodlike corpus gelatum is known from some species of *Leptonemella* (GERLACH 1964 and own observations), *Stilbonema* (see GERLACH 1963), *Ixonema* LORENZEN 1971 (all genera belonging to the order Desmodorida), *Synodontium* (see HOPPER 1962 and 1963) and *Axonolaimus helgolandicus* LORENZEN 1972 (order Araeolaimida), but in these species this feature holds true for both sexes, and there is no sexual difference in the size of the amphids. All species mentioned live in marine sand. Consequently, the special features of the amphids and the corpus gelatum may be an adaptation to life in sand. The same may be true for the fingerlike attenuation of the head end, which is known only from sandliving nematodes belonging to different orders: *Manunema* GERLACH 1957, *Anomonema* HOPPER 1963, *Metaraeolaimoides* DE CONINCK 1936 (all to order Araeolaimida), *Rhynchonema* COBB 1920, species of *Theristus* with unequal spicula (order Monhysterida), and *Barbonema* FILIPJEV (order Enoplida). References to all genera and species mentioned above can be found in GERLACH and RIEMANN (1973/1974).

*Calomicrolaimus* and the other genera of the Microlaiminae are alike in the structure of the head and of the oesophagus. The special features of *Calomicrolaimus* indicate that the common phylogentic origin with the other genera of the subfamily lies far back in the past.

### Bibliography

- GERLACH, S. A.: Freilebende Meeresnematoden von den Malediven II. — Kieler Meeresforsch., 19, 67—103, Kiel 1963.  
 — Freilebende Nematoden aus dem Roten Meer. — Kieler Meeresforsch., 20 (Sonderheft), 18—34, Kiel 1964.  
 GERLACH, S. A. and F. RIEMANN: The Bremerhaven Checklist of Aquatic Nematodes. — Veröff. Inst. Meeresforsch. Bremerhaven, Suppl. 4, 1—734, Bremerhaven 1973/74.  
 HOPPER, B. E.: Free-living marine nematodes of Rhode Island waters. — Can. J. Zool., 40, 41—52, Ottawa 1962.  
 — Marine nematodes from the coast line of the Gulf of Mexico. III. Additional species from the Gulf Shores, Alabama. — Can. J. Zool., 41, 841—863, Ottawa 1963.

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