Opusc. Zool. Budapest, 2009, 40 (1): 3–8

Cerviconema cygneum and *Papuadorus amplus,* two new genera and species (Nematoda: Dorylaimida) from high altitude regions

I. ANDRÁSSY[1]

Abstract. Two new species of dorylaimid nematodes each representing a new genus are described and illustrated. *Cerviconema* gen. n., with *C. cygneum* sp. n. from Bolivia as type, belongs to the family Paraxonchiidae and is characterized by the strongly tapered neck, small head, simple and medium-long odontostyle, short cylindrus, paired gonads, transverse vulva and conoid tail. *Papuadorus* gen. n., with *P. amplus* sp. n. from Papua New Guinea as type, belongs to the family Nordiidae and can be characterized by the long and slender odontostyle, rod-like odontophore, amphidelphic genital organ, longitudinal vulva, great number of contiguous supplements and conoid tail.

This paper presents descriptions of two new nematode species that represent a new genus each. They were collected at high altitude – over 3000 m above sea level – in two tropical regions: one, *Cerviconema cygneum* gen. et sp. n. in Bolivia, and another, *Papuadorus amplus* gen. et sp. n. in Papua New Guinea. Both species – and genera as well – belong to the order Dorylaimida, suborder Dorylaimina and the superfamily Dorylaimoidea.

Cerviconema gen. n.

Paraxonchiidae. Body moderately long, excessively tapered in anterior region and curved in posterior half. Cuticle smooth. Cephalic region very small, about one-fourth of body width at neck base, slightly offset; lips hardly separated. Amphids caliciform. Odontostyle thin, somewhat longer than labial width, aperture occupying one-third of its length. Oesophagus enlarged well behind its middle. Oesophago-intestinal junction with a disc-like structure. Didelphic. Vulva transverse, sclerotized. Prerectum short. Tail short, conoid, ventrally curved. Male not known.

Type species. Cerviconema cygneum sp. n.

As regards its general shape and especially its strongly narrowed anterior body, *Cerviconema* gen. n. can be placed in the family Paraxonchiidae. According to Andrássy (2009), four genera (including 17 species) belong to this family: *Paraxonchium* Krall, 1958 (13 species), *Gopalus* Khan, Jairajpuri & Ahmad, 1987 (monotypic), *Tendinema* Siddiqi, 1995 (two species) and *Parapalus* Loof & Zullini, 2000 (monotypic). The new genus differs from them as follows. a) From *Paraxonchium* by the inconspicuous subcuticular glands, thin and straight odontostyle (*vs*. thick, mostly curved with large aperture), presence of a cardial disc (*vs*. cardia with three small separate cells), and by the other shaped tail (*vs*. straight-conoid, subdigitate or elongate). b) From *Gopalus* by the more strongly narrowed anterior region, offset head, shorter odontostyle (*vs*. as long as two labial diameters), structure of cardia, heavily sclerotized vulval lips, and by the strongly curved tail (*vs*. straight-conical with subdigitate tip). c) From *Tendinema* by the smooth cuticle (*vs*. transversely striated), offset head, odontostyle with shorter aperture, presence of cardial disc, well sclerotized vulval lips, and by the conoid, pointed tail (*vs*. conoid-rounded). d) From *Parapalus* by the less separated head, shorter odontostyle (*vs*. nearly twice as long as labial width), disc-like cardia, heavily sclerotized vulval lips, and by the strongly curved tail (*vs*. straight-conoid).

Etymology. Composed of the Latin *cervix* = neck and the Greek *nema (νεμα)* = a thread.

[1]*Dr. István Andrássy,* ELTE Állatrendszertani és Ökológiai Tanszék, MTA Zootaxonómiai Kutatócsoport (Department of Systematic Zoology and Ecology of the Eötvös Loránd University, Systematic Zoology Research Group of the Hungarian Academy of Sciences), Pázmány Péter sétány 1/C, 1117 Budapest, Hungary.

Cerviconema cygneum sp. n.

(Fig. 1 A–F)

Holotype female: L = 1.40 mm; a = 25; b = 3.7; c = 40; c' = 1.2; V = 53 %.

Paratype females (n = 2): L = 1.28–1.44 mm; a = 26–27; b = 3.9–4.0; c = 41–44; c' = 1.1–1.2; V = 49–52 %.

General structures. Body C- or G-shaped upon fixation, fairly robust at middle and in posterior part, but strikingly tapered in anterior region to the very small knob-like head; 46–55 µm wide at mid-region. Cuticle smooth, 2.0–2.5 µm thick on most body and 3.5–4.0 thick on tail. Subcuticular glands inconspicuous. Lip region unusually small, 10.0–10.5 µm wide, slightly offset, lips amalgamated. Body at posterior end of oesophagus 4.2–4.6 times as wide as head. Amphids cup-shaped with aperture half of corresponding body width.

Odontostyle thin and symmetrical, 13–14 µm long, 1.2–1.4 times as long as labial diameter, aperture occupying about one-third of stylet length. Guiding ring simple, thin. Oesophagus 320–380 µm long, gradually widened at 60–65 % widened. Cylindrus strongly structured, oesophageal glands inconspicuous. Dorsal gland unusually small, located at 69–71 % of oesophagus length or 17–19 % of total body length. Glandularium 102–108 µm long. Cardia with three cells forming a disc-like structure. Distance between posterior end of oesophagus and vulva a bit shorter or longer than oesophagus.

Female. Genital system amphidelphic, well developed. Each gonad 3.8–5.0 body widths long or occupying 14–18 % of body length. Vulva transverse with heavily sclerotized inner lips. Vagina 28–34 µm long, mostly longer than half corresponding body diameter. No uterine eggs. Rectum 0.9–1.1, prerectum 1.0–1.8 anal body widths long. Vulva–anus distance equal to 18–20 tail lengths. Tail 31–34 µm long (2.3–2.5 % of entire length of body), conoid, ventrally curved with finely rounded to pointed tip.

Male. Not found.

Type specimens. Holotype female on slide No. 12539. Paratypes: two females and two juveniles; all in the collection of the author.

Type habitat and locality. Sphagnum bog at Coroico about 60 km north-east of La Paz, Cordillera Real, 3200 m above sea level, Bolivia; collected in November, 1966 by J. Balogh, S. Mahunka and A. Zicsi.

Cerviconema cygneum sp. n. can easily be identified by its general shape and size, the strongly narrowed neck, small head, posteriorly widened oesophagus, structure of cardia as well as by the shape of the tail.

Etymology. The species epithet *cygneum* (Latin) comes from *cygnus* = a swan, and means: swan-like, referring to the long and narrow neck.

Papuadorus gen. n.

Nordiidae. Body nearly 2 mm in length, robust. Cuticle smooth. Head offset, narrow. Odontostyle enchodeloid, long and slender, odontophore rod-like. Guiding apparatus double. Dorsal nucleus at mid-region of oesophagus, PS nuclei rather far from posterior end of cylindrus. Female amphidelphic with longitudinal vulva and very thick vagina. Male supplements numerous (20 or more) and contiguous, all lying anterior to spicula. Tail similar in sexes, short, conoid, ventrally curved.

Type species. Papuadorus amplus sp. n.

As for the general habit, and particularly the shape and structure of the feeding apparatus, this genus undoubtedly belongs to the family Nordiidae and the subfamily Pungentinae. It is closely related to the genera *Enchodelus* Thorne, 1939 and *Heterodorus* Altherr, 1952 (containing 23 and 25 species, respectively; see Andrássy, 2009), but differs from them by the longitudinal vulva, thick vagina and the great number of the contiguous supplements in males (*vs.* supplements 6–16 in *Enchodelus,* and 4–9 in *Heterodorus,* and well spaced in both genera). Moreover, the new genus differs from *Enchodelus* by all the supplements lying well before the spicula, and by the conoid, sharply pointed tail (*vs*. posterior supplements

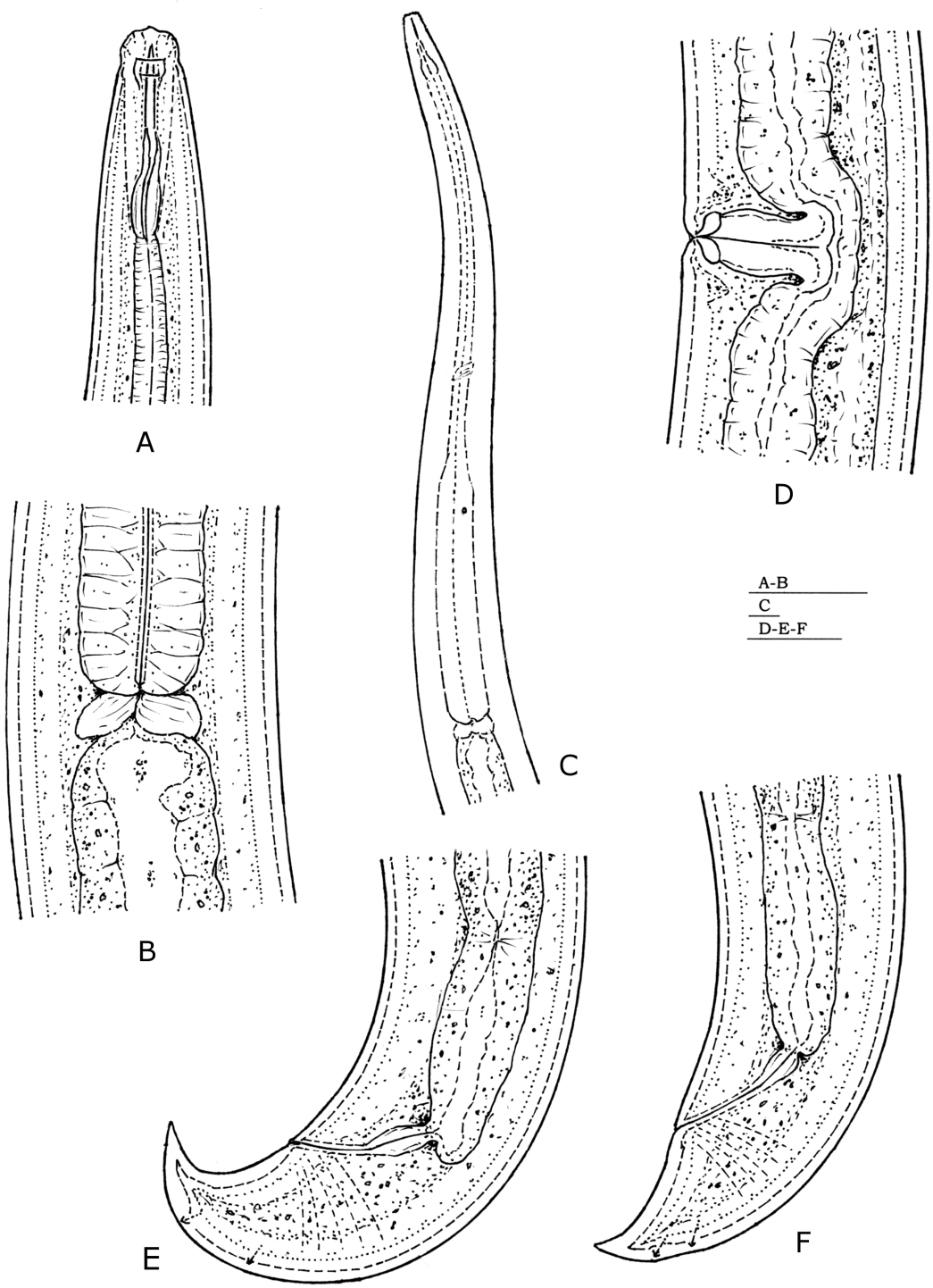

Figure 1. *Cerviconema cygneum* sp. n. A: anterior end; B: oesophago-intestinal junction (*nota bene:* A and B are of the same magnification!); C: neck region; D: vulval region; E–F: female tail. (Scale bars 20 μm each)

located in the range of the spicula, and tail broadly rounded).

In having a longitudinal vulva and a high number of ventromedial supplements, *Papuadorus* gen. n. can be compared with another nordiid genus, *Lanzavecchia* Zullini, 1988 (containing two species). However, it is differentiated from that by the muscular odontophore, double guiding ring, ventrally curved tail, as well as by the contiguous arrangement of the supplements.

Etymology. Papua + *dorus* where the Greek *dory (δόρυ)* = a lance or spear.

***Papuadorus amplus* sp. n.**

(Fig. 2 A–E)

Holotype female: L = 2.00 mm; a = 26; b = 3.6; c = 30; c' = 1.5; V = 53 %.

Paratype female: L = 2.05 mm; a = 24; b = 4.0; c = 31; c' = 1.6; V = 55 %.

Paratype males (n = 3): L = 1.83–1.87 mm; a = 23–26; b = 3.5–3.9; c = 28–33; c' = 1.2–1.4.

General structures. Body robust, 72–86 µm wide at mid-region. Cuticle smooth and thin, 1.5–2.0 µm thick on most body and 3.0–3.5 µm thick on tail. Lip region cap-like, 20–21 µm wide, strongly offset by a deep depression; lips amalgamated. Body strongly widened behind head, at posterior end of oesophagus 3.6–4.2 times as wide as lip region. Amphids cup-like, their apertures about half as wide as corresponding body.

Odontostyle long and slender, 38–40 µm long in females and 35–36 µm long in males; 1.7–2.0 times as long as labial diameter; as thick as or somewhat thicker than cuticle at the same level. Odontophore rod-like with a swollen muscular sleeve, 58–62 µm long, 1.5–1.8 times longer than stylet. Guiding ring double, comparatively high. Oesophagus 490–550 µm long, occupying one-fourth or more of body length, gradually widened somewhat before its middle. Dorsal oesophageal nucleus distinct, lying at 50 % of oesophagus length or 12–13 % of total body length. AS nuclei inconspicuous, PS nuclei at 70–72 %. Glandularium 245–275 µm long.

Female. Reproductive system amphidelphic, each genital branch 5.0–5.5 times as long as body diameter or occupying 20–22 % of body length. Vulva a long longitudinal slit, vagina unusually strong, 48–55 µm long, reaching to more than half of body diameter. No uterine eggs observed. Rectum 1.4–1.5, prerectum 3.2–5.4 anal body widths long. Vulva–anus distance equal to 12–13 tail lengths. Tail 66–70 µm long, occupying only 3.0–3.6 % of entire length of body, conoid, ventrally curved, and pointed on tip.

Male. Testes two. Spermatozoa more or less globular. Spicula 112–115 µm, almost twice as long as tail. Ventromedial supplements 20–24, in most part contiguous; their series occupying 175–208 µm. Prerectum beginning within the row of supplements. Tail similar to that of female, 57–65 µm long.

Type specimens. Holotype female on slide No. 13027. Paratypes: one female, four males and one juvenile; all in the collection of the author.

Type habitat and locality. Wet moss growing on a large rock at about 4000 m above sea level, Mt. Wilhelm, Papua New Guinea; collected in August, 1968 by J. Balogh and I. Loksa.

Etymology. The Latin epithet *amplus* means: considerable or significant, and refers to the general appearance of this illustrious nematode species.

REFERENCES

ALTHERR, E. (1952): Les Nématodes du Parc national suisse. (Nématodes libres du sol.) – *Ergebnisse der wissenschaftlichen Untersuchungen der Schweizerischen National Park, 26: 315–356.*

ANDRÁSSY, I. (2009): *Free-living nematodes of Hungary (Nematoda errantia), III.* Csuzdi, Cs. & Mahunka, S. (eds.): Pedozoologica Hungarica, 5, Budapest, 608 pp.

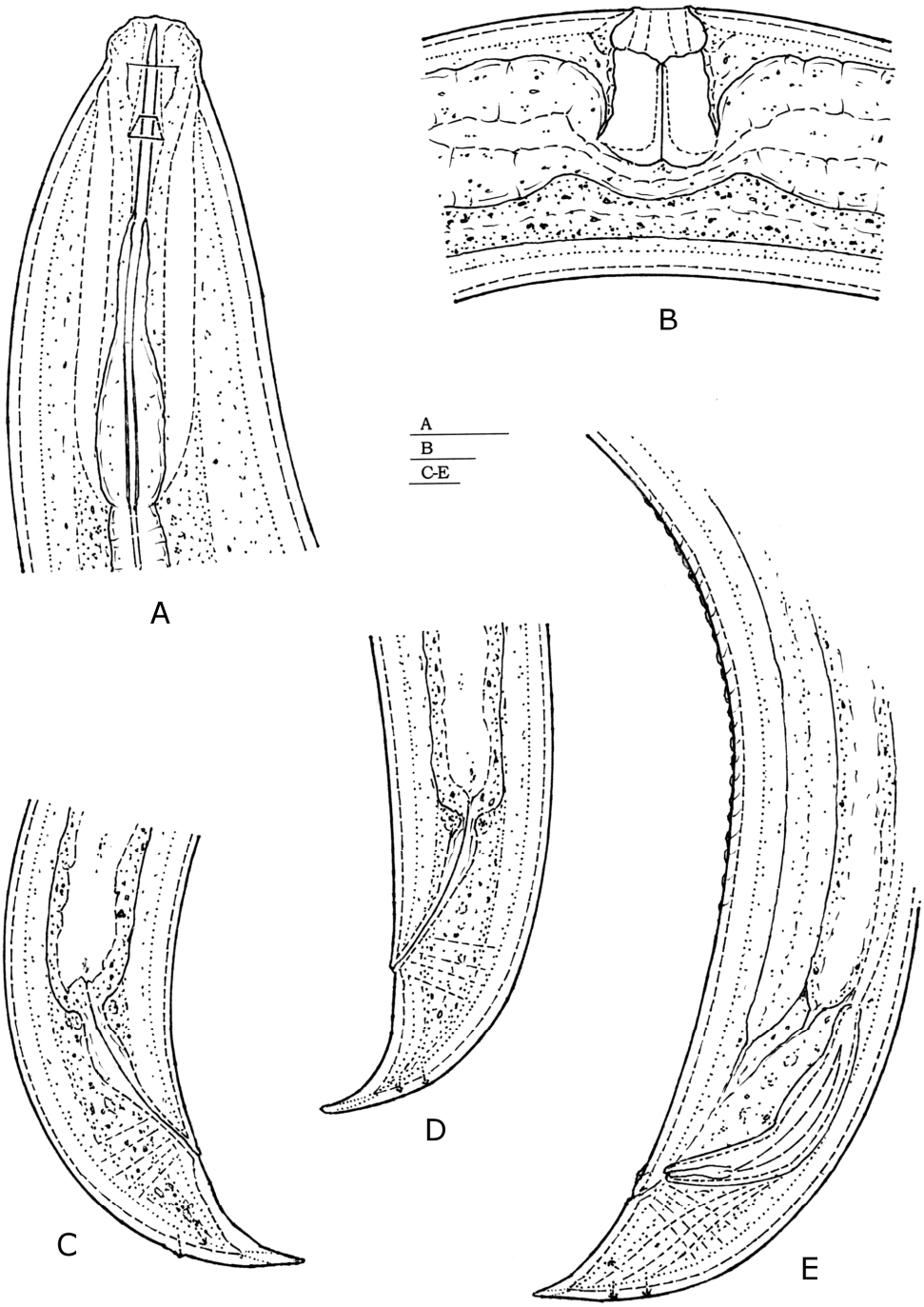

Figure 2. *Papuadorus amplus* sp. n. A: anterior end; B: vulval region; C–D: female tail; E: male posterior end. (Scale bars 20 µm each)

KHAN, T. H., JAIRAJPURI, M. S. & AHMAD, W. (1988): *Gopalus swarupi* gen. n., sp. n. (Nematoda: Dorylaimida) from India. *Indian Journal of Nematology, 17: 288–291.*

KRALL, E. L. (1958): *Paraxonchium striatum* n. gen., n. sp. (Nematoda, Belondiridae), a new free-living soil nematode from Estonia. *Eesti NSV Teaduste Akadeemia Toimetised, 7: 272–276.*

LOOF, P. A. A. & ZULLINI, A. (2000): Freeliving nematodes from nature reserves in Costa Rica. 1. Dorylaimina. *Nematology, 2: 605–633.*

SIDDIQI, M. R. (1995): Nematodes of tropical rainforests. 5. Seven new genera and forty two new species of dorylaims. *Afro-Asian Journal of Nematology, 5: 72–109.*

THORNE, G. (1939): A monograph of the nematodes of the superfamily Dorylaimoidea. *Capita Zoologica, 8: 1–261.*

ZULLINI, A. (1988): A new genus and five species of nematodes from Ethiopian lakes. *Revue de Nématologie, 11: 279–288.*