

NEODOLICHODORUS PARALONGICAUDATUS SP. N. FROM NAMIBIA (NEMATODA: TYLENCHIDA)

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ABSTRACT

Key words: *Dolichodoros*, head structure, Namibia, *Neodolichodoros*, taxonomy

Neodolichodoros paralongicaudatus n. sp. combines characters of *Dolichodoros* and *Neodolichodoros*. Since these two genera are not adequately demarcated and most diagnostic characters show intrageneric variation and overlap, the new species is provisionally placed in *Neodolichodoros*, mainly because it has four lateral lines.

Uittreksel

BESKRYWING VAN 'N NUWE DOLICHODORIDAE-SPEESIE UIT SUIDWES-AFRIKA/NAMIBIE (NEMATODA: TYLENCHIDA)

Neodolichodoros paralongicaudatus n. sp. besit 'n kombinasie van kenmerke van *Dolichodoros* en *Neodolichodoros*. Hierdie twee genera is egter nie goed afgebaken nie, en die meeste van die diagnostiese kenmerke varieer nie alleen binne elke genus nie, maar oorvleuel ook. Die nuwe spesie word dus voorlopig in *Neodolichodoros* geplaas hoofsaaklik op grond van die besit van vier laterale lyne.

INTRODUCTION

During a study of plant-parasitic nematodes from Namibia a new representative of the family Dolichodoridae with characters of both *Dolichodoros* Cobb, 1914 and *Neodolichodoros* Andrássy, 1976 was found. Two fully developed females (one still in the moulting sheath), four young females (still in the 4th juvenile sheath, with only the stylet cone distinct) and three juveniles were available for study. Since adults and juveniles were morphologically similar, we considered the material sufficient to describe this peculiar species.

MATERIAL AND METHODS

The specimens were extracted from the soil with the centrifugal sugarflotation technique (Jenkins, 1964), killed by gradual heating in water, fixed in F.A.A., processed to anhydrous glycerine by a modified Seinhorst method (De Grisse, 1968) and mounted on Cobb aluminium double-coverslip slides. For SEM study a young female was prepared according to the technique described by Luc *et al.* (1987). For sectioning of the head a juvenile was used.

DESCRIPTION

Neodolichodoros paralongicaudatus n. sp. (Fig. 1A–K and Fig. 2A and B)

Measurements

Holotype female: L=1,92 mm; a=50,3; pharynx = 233 µm; b=8,2; tail=90,5 µm; c=21,2; c'=3,1; V=50,6 %; stylet=73 µm; stylet cone=43,5 µm.

Paratype female: L=1,70 mm; a=37,7; pharynx=232 µm; b=7,3; tail=79 µm; c=21,5; c'=3,3; V=52,4 %; stylet=75,5 µm; stylet cone=44,5 µm.

Young females (n=3): L=1,56 mm (1,41–1,69); a=37,4 (34,9–39,5); pharynx=209,7 µm (197–229); b=7,4(7,1–7,8); tail=102 µm (91–123); c=15,6 (12,9–18,6); c'=3,6 (3,5–3,9); V=49,9 % (48,9–50,9); stylet cone=36,3 µm (33,5–39,5).

Female

Body cylindrical, almost straight to strongly ventrally curved when heat-relaxed, tapering at both ends. Cuticle 3 µm thick, coarsely annulated, annuli 1,5–2,0 µm wide. Lateral field with four equidistant lines, irregularly areolated (Fig. 2B), disappearing beyond phasmid before middle of tail. Labial region 7,5 µm high and 11 µm wide with five annuli, distinctly separated from body by a deep constriction, with strongly sclerotized cephalic framework; labial disc elevated. Face views under light microscope and SEM show a more or less rectangular lip region with indentations dorsally and ventrally. Labial disc rounded. Oral aperture hexagonal with six small prominent projections (observed only under SEM, as shown in the diagrammatic drawing in Fig. 1F). Amphidial apertures situated close to labial disc, bracket-shaped, directed dorso-ventrally. No labial sensillae observed. Anterior and posterior cephalids dot-like in lateral view, at about level of 4th and 9th annuli posterior to basal plate. Stylet long and slender, basal knobs sloping posteriorly. Procorpus cylindrical, lumen coiled. Dorsal pharyngeal gland orifice about 4 µm from base of stylet, duct not visible; median bulb ovate, heavily muscular with strong valve; isthmus relatively long; basal bulb elongate-pyiform, intestine slightly over-lapping bulb. Dorsal gland nucleus large, posteriorly located near base of bulb. Subventral gland nuclei smaller but distinct, anterior to dorsal gland nucleus, at middle of bulb. Pharyngo-intestinal valve hemispherical. Intestine overlapping rectum, filling about half of tail. Excretory pore 167–183 µm from anterior end, opposite anterior to posterior end of isthmus; nerve ring around basal part of isthmus, broad, 173–184 µm from anterior end. Hemozonid about three annuli posterior to excretory pore. Hemizonion not seen.

Two genital branches, opposite and outstretched with well-developed axial spermathecae, filled with elongate sperm cells (empty in paratype female). Because the body is twisted, the vulval structure is not distinct. Vagina about half of body width long, vaginal sclerotization heavy, possibly slightly asymmetrical but this character indistinct because of twisted condition of body. Uterus with distinct cells, in four rows. One egg observed, measuring 103 × 24 µm. Tail elongate-conoid with pointed terminus. Phasmid at about one third of tail length behind anus. Males not found.

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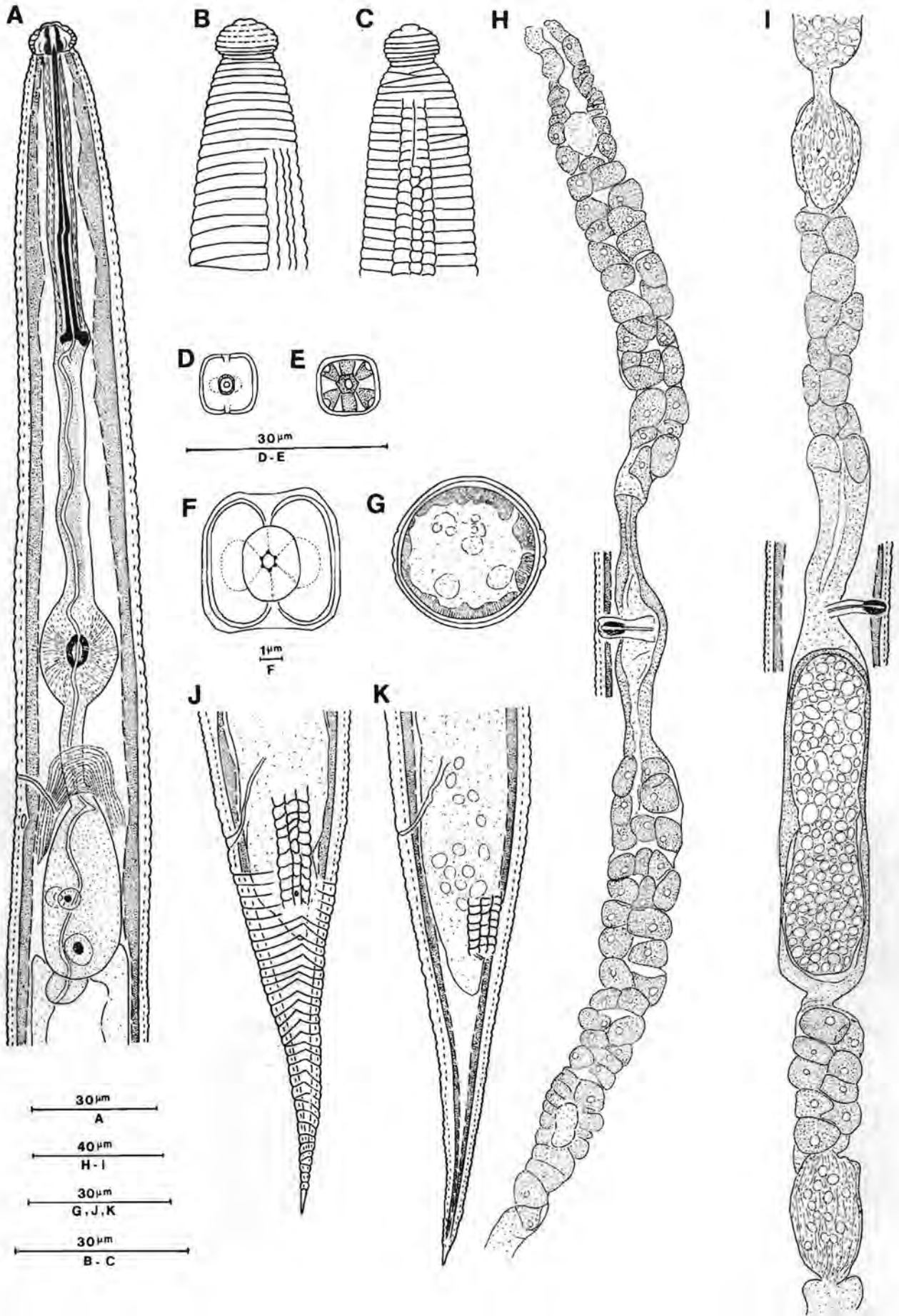


FIG. 1 *N. paralongicaudatus* n. sp. A: Anterior region of female; B: Head region surface view (female); C: Head region surface view (4th stage juvenile); D and E: En face view juvenile; F: SEM face view female (diagrammatic drawing); G: Cross section of body; H and I: Female reproductive system; J and K: Female tails

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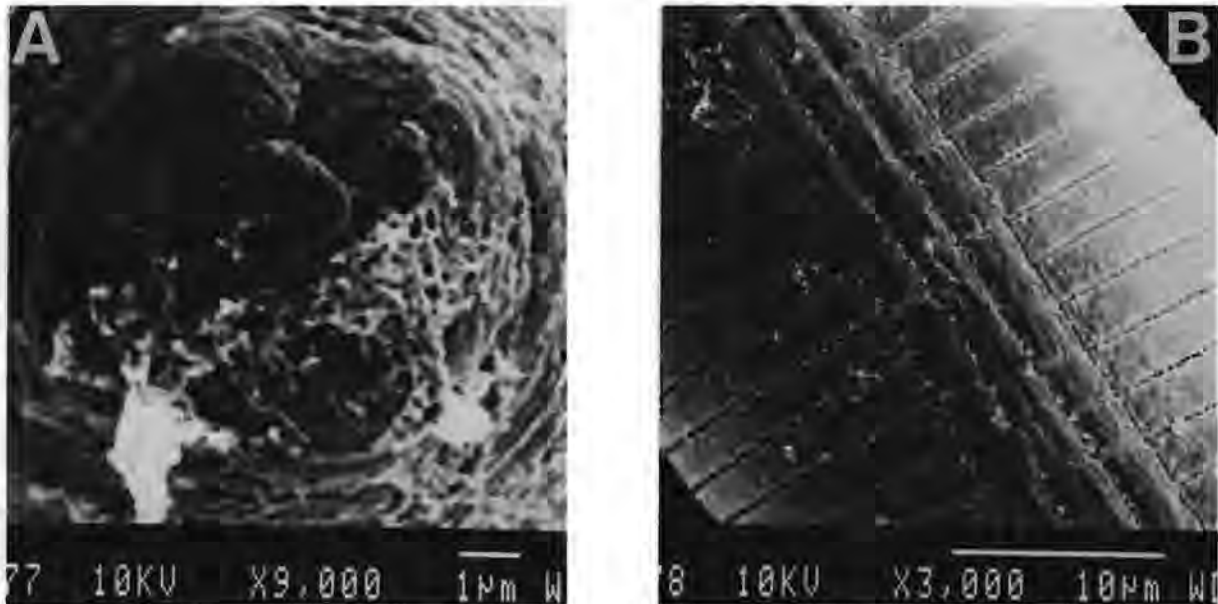


FIG. 2 SEM photomicrograph of *N. paralongicaudatus* n. sp. female. A: Face view; B: Lateral field.

Type locality and habitat: In the rest camps at Ai-Ais in the Fish River Canyon, Namibia. In moist soil under reeds in the broad river bed, collected 1 August 1986 by J. Heyns and A. Coomans.

Type specimens: Holotype female, one young female and three juveniles are deposited in the Collection of the Rand Afrikaans University, South Africa. One paratype female and two young females are deposited in the Collection of the Instituut voor Dierkunde, Rijksuniversiteit Gent, Ledeganckstraat 35, 9000 Gent, Belgium.

Diagnosis

A *Neodolichodorus* species with strongly offset lip region with five annuli, relatively short stylet (73–75.5 µm), elongate-conoid tail and four equidistant lateral lines.

Discussion and relationships. Siddiqi (1986) and Luc & Fortuner (1987) used the same characters to differentiate between *Dolichodorus* and *Neodolichodorus*, viz. lip region shape, distinctness of labial disc, amphid structure, number of lateral lines, tail shape and position of phasmids. With the exception of the number of lateral lines (three in *Dolichodorus* and four in *Neodolichodorus*) all the above characters show a considerable intrageneric variation and even intergeneric overlap. Although the number of lateral lines seems hardly a suitable character for separating genera and should in our opinion rather be used at species level, it is at present the only consistent difference between the two groups.

The new species combines characters of both genera. In lip region shape the species resembles species of *Dolichodorus*, although the *en face* appearance is similar to that of *Neodolichodorus rostrulatus* (Siddiqi, 1976) as shown by Luc *et al.* (1987). The labial disc is moderately prominent, as in many *Dolichodorus* species. The amphid aperture is bracket-shaped, but also dorso-ventrally directed, as stated in Luc & Fortuner's (1987) diagnosis of *Neodolichodorus*. Both Siddiqi (1986) and Luc & Fortuner (1987) define *Neodolichodorus* as having a short, posteriorly rounded female tail, but rarely conoid (Luc & Fortuner 1987), or mammillate

(Siddiqi, 1986). In the new species the tail is elongate-conoid, as in *Dolichodorus longicaudatus* Doucet, 1981, and the phasmid is postanal, as in all *Dolichodorus* species. However, as the species has four lateral lines we provisionally place it in *Neodolichodorus*.

Neodolichodorus paralongicaudatus n. sp. differs from *N. rostrulatus* which it resembles in head structure by having several distinct annuli on the lip region, by the elongate-conoid tail vs a hemispherical tail and by the postanal position of the phasmid. The new species closely resembles *D. longicaudatus* in general appearance, but is distinguished by having four lateral lines vs three lines and by the dorso-ventrally directed amphid apertures vs laterally directed apertures in *D. longicaudatus*. The new species also has a shorter stylet than any other *Neodolichodorus* species except *Neodolichodorus brevistilus* (Heyns & Harris, 1973), which has stylet lengths of 50–56 µm and 47–50 µm in the female and male respectively (Heyns & Harris, 1973).

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