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

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**Abstract**

Key words: Dolichodorus, head structure, Namibia, Neodolichodorus, taxonomy

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

**Introduction**

During a study of plant-parasitic nematodes from Namibia a new representative of the family Dolicho­doridae with characters of both Dolichodorus Cobb, 1914 and Neodolichodorus Andass, 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 sugar flotation 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 alumina double-overslip 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**

Neodolichodorus paralongicaudatus n. sp. (Fig. IA-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=223 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 buse of stylet, duct not visible; median bulb ovate, heavily muscular with strong valve; isthmus relatively long; basal bulb elongate­pyriform, 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. Hemozoonid about three annuli posterior to excretory pore. Hemosomion not seen.

Two genital branches, opposite and outstretched with well-developed axial spermthecae, 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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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 dorsoventrally 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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References


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