

On the genus *Oriverutus* Siddiqi, 1971 (Nematoda: Dorylaimida)

I. ANDRÁSSY*

Abstract. A known and two new species of the genus *Oriverutus* Siddiqi, 1971 are described. *Oriverutus maturitatis* Andrassy, 1995 is reported from Bolivia, Ecuador and Peru, and the male described for the first time. *Oriverutus masculus* sp. n. from Ecuador is an amphidelphic species characterized by large size, number and arrangement of ventromedial supplements. *Oriverutus orientalis* sp. n. from New Guinea is a monodelphic species characterized by the length and shape of stylet and tail. A general view of the genus *Oriverutus* and a key to its species are added.

Although the genus *Oriverutus* Siddiqi, 1971 is distributed almost all over the world (in Europe, Asia, Africa, South America and Oceania), its species are rare elements of the terrestrial faunas. In most localities they can be found in low individual number.

Up to now, nineteen species had been regarded as belonging to this interesting genus. In the second part of this article I want to give a general survey of the genus *Oriverutus* and to enumerate its species. First, however, I provide the descriptions of three species. One species, *Oriverutus maturitatis* Andrassy, 1995, was already known, but this is the first report on the male. Two species are new to science: *Oriverutus masculus* sp. n. and *O. orientalis* sp. n. The two former originated from South America, the latter came from New Guinea.

Oriverutus maturitatis Andrassy, 1995

(Fig. 1 A–F)

Specimens from Bolivia:

Females (n = 2): L = 0.82–0.92 mm; a = 24–26; b = 3.2–3.8; c = 18–19; c' = 2.5–2.9; V = 46–49 %.

Specimens from Peru:

Female: L = 0.96 mm; a = 27; b = 3.4; c = 18; c' = 3.0; V = 50 %.

Male: L = 1.04 mm; a = 30; b = 3.5; c = 28; c' = 1.7.

Specimens from Ecuador:

Females (n = 2): L = 0.83–1.00 mm; a = 25–26; b = 3.5–3.6; c = 17–21; c' = 2.2–2.5; V = 44–47 %.

Body C-shaped after fixation, 32–38 μm wide at mid-region. Cuticle thin and smooth, 1.0–1.5 μm , on tail somewhat thicker. Labial region 9–10 μm wide (a' = 80–115), set off by constriction. Lips separated from one another, labial papillae prominent, especially the anterior ones. Body at posterior end of oesophagus 3.4–3.8 times as wide as head. Amphids large, wide and deep with apertures nearly equal to corresponding body diameter.

Odontostyle 13–15 μm , about 5 % of oesophagus length, 1.3–1.6 times the labial width long, slender, nearly as thick as cuticle, sharply pointed on its anterior tip. Length of stylet aperture inconspicuous. Guiding ring simple, thin. Oesophagus 245–296 μm long, occupying 27–31 % of body length, slender and weakly muscular in its anterior part, gradually widened at 57–61 % of its length. Cylindrus thick and strongly muscular. Glandularium 88–95 μm long. Oesophageal nuclei small, rather inconspicuous. Dorsal nucleus at 20 % of entire length of body. AS₁ closer to AS₂ than to D. PS nuclei at a distance of 10–14 μm (barely a cylindrus width) from posterior margin of

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

oesophagus. Cardia conoid, short. Rectum as long as 1.7–1.9, prerectum as 2.2–2.9 anal body diameters.

Oesophageal nuclei in Oriverutus maturitatis

D = 67–69 %	AS ₁ = 32–34 %
	AS ₂ = 47–48 %
	PS ₁ = 84–85 %
K = 68–70 %	PS ₂ = 85–88 %

Female. Genital organ amphidelphic. Vulva transverse with small sclerotized lips, lying at a distance of 4.8–5.6 body widths from oesophagus. Vagina 15–18 μm , nearly as deep as half body width. Anterior gonad on the right side, 2.5–3.0 body diameters long or 10–12 % of body length, posterior gonad on the left side, 3.0–3.5 body diameters long or 11–14 % of body length. Ovaries almost reaching to vulva. Spermatheca between uterus and oviduct present. Mature eggs not observed. Distance vulva–anus equal to 8–9 tail lengths. Tail 42–52 μm , 5.0–5.5 % of body length, conoid, gradually tapering to its sharp tip. Posterior half of tail straight or slightly bent dorsad.

Male. Testes two. Genital tract (from anterior tip of the first testis to cloaca) as long as 17 body diameters, occupying 56 % of total length of body. Spermatozoa oval, 4 μm long. Spicula massive, 38 μm long in curvature, with weak venter. Ventromedial supplements seven, well spaced, the posteriormost levelling with the spicula. Prerectum beginning between the 2nd and 3rd supplement. Tail similar to female, 37 μm long, 3.5 % of body, conoid with straight, sharp tip.

Remarks. I originally described this species from Bolivia after seven female specimens. The present description is based on six females and one male.

The present females correspond well to the original description. The male was found for the first time, and it also fits the general criteria of the species. *Oriverutus maturitatis* can be characterized by the body size being around 1 mm, the smooth cuticle, well separated head, moderately long stylet, posterior position of PS nuclei, long rectum, paired gonads, mostly dorsally bent tail,

and by the number and arrangement of male supplements.

Including the following new species (*O. masculus*), males are known in ten species within the genus. Out of them three are characterized in having the posteriormost supplement(s) within the range of spicula: *Oriverutus anisi* Ahmad & Jairajpuri, 1987, *O. arcuatus* Baqri, 1980 and *O. masculus* sp. n. *Oriverutus maturitatis* differs from them, among others, in the number of supplements (7 vs. 6, 3 or 10–11 respectively).

Localities. Porto Linares, Bolivia, litter from rain forest, December 1971, coll. J. Balogh (three females). – Flavio Alfaro, Prov. Manabi, Ecuador, soil and detritus from bamboo forest, April 1990, coll. A. Zicsi and Cs. Csuzdi (two females). – Tingo Maria, Peru, 800 m above sea-level, decayed wood rests from a deciduous forest, July 1999, coll. J. Farkas (one female, one male).

It seems that *Oriverutus maturitatis* is generally distributed in the western countries of the South American continent.

Oriverutus masculus sp. n.

(Fig. 2 A–E)

Holotype male: L = 1.28 mm; a = 29; b = 4.1; c = 24; c' = 2.0.

Paratype males (n = 2): L = 1.26–1.47 mm; a = 30–31; b = 3.9–4.5; c = 25–30; c' = 1.8–1.9.

Comparatively large species, body C-shaped or twisted, especially in posterior part. Body width 40–46 μm at mid-region. Cuticle 2 μm thick, apparently smooth. Lip region 14 μm wide, set off by a constriction. Lips well separated, large, lobe-like, labial papillae protruding. Body at posterior end of oesophagus 2.9–3.1 times as wide as head. Amphids broad and deep, nearly as wide as corresponding body.

Odontostyle 22–24 μm long, 1.6–1.7 head diameters or 7–8 % of oesophagus, relatively strong, equal to cuticle in thickness. Stylet aperture seemingly large. Oesophagus 305–315 μm , 24–25 % of body length, slender in its anterior section, gradually widening at 53–57 % of its length. Cylindrus strong. Glandularium 112–120

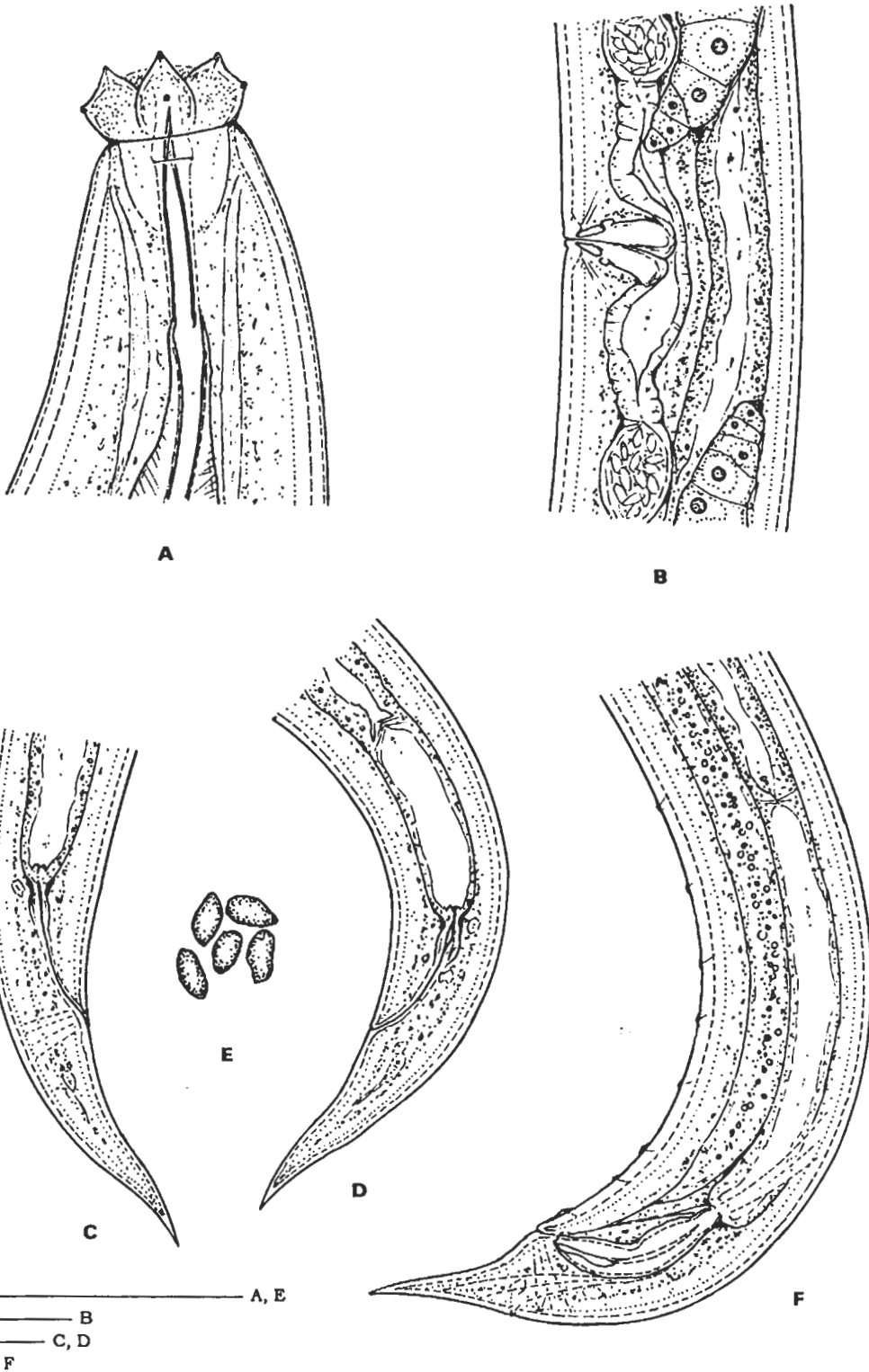


Figure 1. *Oriverutus maturitatis* Andr ssy, 1995. A: anterior end with strongly offset head, large lips, very large amphid and sharply pointed odontostyle; B: vulval region with transverse vulva, sclerotized narrow vulval lips, spermathecas containing spermatozoa; C-D: female tails slightly bent posteriorly with sharp tips; E: spermatozoa; F: posterior end of male with seven well-spaced ventromedial supplements and tail similar to that of female. (Scale bars 20 μ m each)

µm long. By virtue of the heavy structure of cylindrus, the oesophageal gland nuclei are less visible. Dorsal nucleus located at 15 % of entire length of body. AS₁ closer to its partner than D. PS nuclei one cylindrus width from oesophagus terminus. Cardia hemispheroid. Prerectum beginning at level of the 4th to 6th supplement.

Oesophageal nuclei in Oriverutus masculus

D = 64 %	AS ₁ = 35 %
	AS ₂ = 40 %
	PS ₁ = 81 %
K = 87 %	PS ₂ = 84 %

Female. Not found.

Male. Testes paired. Genital tract as long as 11–12 body diameters, occupying 36–38 % of body length. Spermatozoa oval, 4–5 µm. Spicula along the curved axis 44–46 µm long, comes 14 µm. Adcloacal pair of supplements relatively far from cloaca. Ventromedial supplements minute, 10 or 11 in number, separated. Posterior two or three supplements located within the spiculum range. Tail 47–53 µm long, 3–4 % of body length, first ventrally curved then straight. Tip of tail finely rounded.

Diagnosis. Body large, strongly curved or twisted. Cuticle smooth, head separated from neck, lips lobe-like, odontostyle medium slender, more than 1.5 times longer than labial width, anterior subventral oesophageal nuclei close to each other, supplements very small but numerous, a part of them within the range of spicula, posterior half of tail straight. Female not known.

Relationships: In having 1.3 to 1.5 mm long body, *Oriverutus masculus* sp. n. belongs to the largest representatives of the genus. There are two similarly large species, *Oriverutus ivorensis* (Carbonell & Coomans, 1982) Ahmad & Siddiqi, 1997 (1.3–1.5 mm) and *O. longicaudatus* Ahmad & Siddiqi, 1997 (1.1–1.4 mm). The new species can easily be distinguished from them by its much shorter tail (1.8–2.0 vs. 6–9 anal body widths) and shorter stylet (22–24 µm or 1.6–1.7 labial diameters vs. 26–33 µm or 2.4–3.0 labial diameters). Besides, it differs from every species where male is

known in having a high number of ventromedial supplements (10–11 vs. 2–8, exceptionally 9) and in having two or three supplements at level of spicula (vs. one or none).

Holotype. Male on slide No. 13194. Paratypes: two males. All deposited at the collection of the author.

Type locality. Giron, Prov. Azuay, Ecuador, litter from a deciduous forest, Mai 1988, coll. A. Zicsi and Cs. Csuzdi.

Etymology. The species name „*masculus*” is from the Latin and means: male or masculine, referring to the type population that consists of males only.

Oriverutus orientalis sp. n.

(Fig. 3 A–F)

Holotype female. L = 0.93 mm; a = 32; b = 3.3; c = 22; c' = 2.4; V = 43 %.

Paratype females (n = 3): L = 0.91–1.01 mm; a = 30–32; b = 3.1–3.6; c = 21–22; c' = 2.3–2.5; V = 39–42 %.

Body of medium size, C-shaped in fixed stage, 29–32 µm wide at mid-region. Cuticle 1.5–2.0 µm thick, on tail 2.5 µm, consisting of two layers, very finely annulated especially on anterior body. Lip region set off by a depression, 8–9 µm wide (a' = 90–106), lips separated, papillae distinct. Body at posterior end of oesophagus 3.0–3.2 times as wide as head. Amphids large, nearly equal in diameter to corresponding body.

Odontostyle 17–18 µm, as long as 1.9–2.0 cephalic diameters or 6 % of oesophagus; slender, thinner than cuticle at same level, sharply pointed in its distal tip. Guiding ring quite thin, anterior to mid-stylet. Odontophore weakly sclerotized. Oesophagus 282–290 µm long, occupying 28–32 % of body; slender in its anterior part, gradually expanded at 58–62 %. Glandularium 92–100 µm long, occupying 33–34 % of oesophagus. Oesophageal nuclei, with exception of dorsal nucleus, rather inconspicuous. Dorsal nucleus also small, at 66–67 % of glandularium or 20–21 % of entire length of body. Cardia conoid. Rectum equal to 1.5, prerectum to 2.3–2.5 anal body widths.

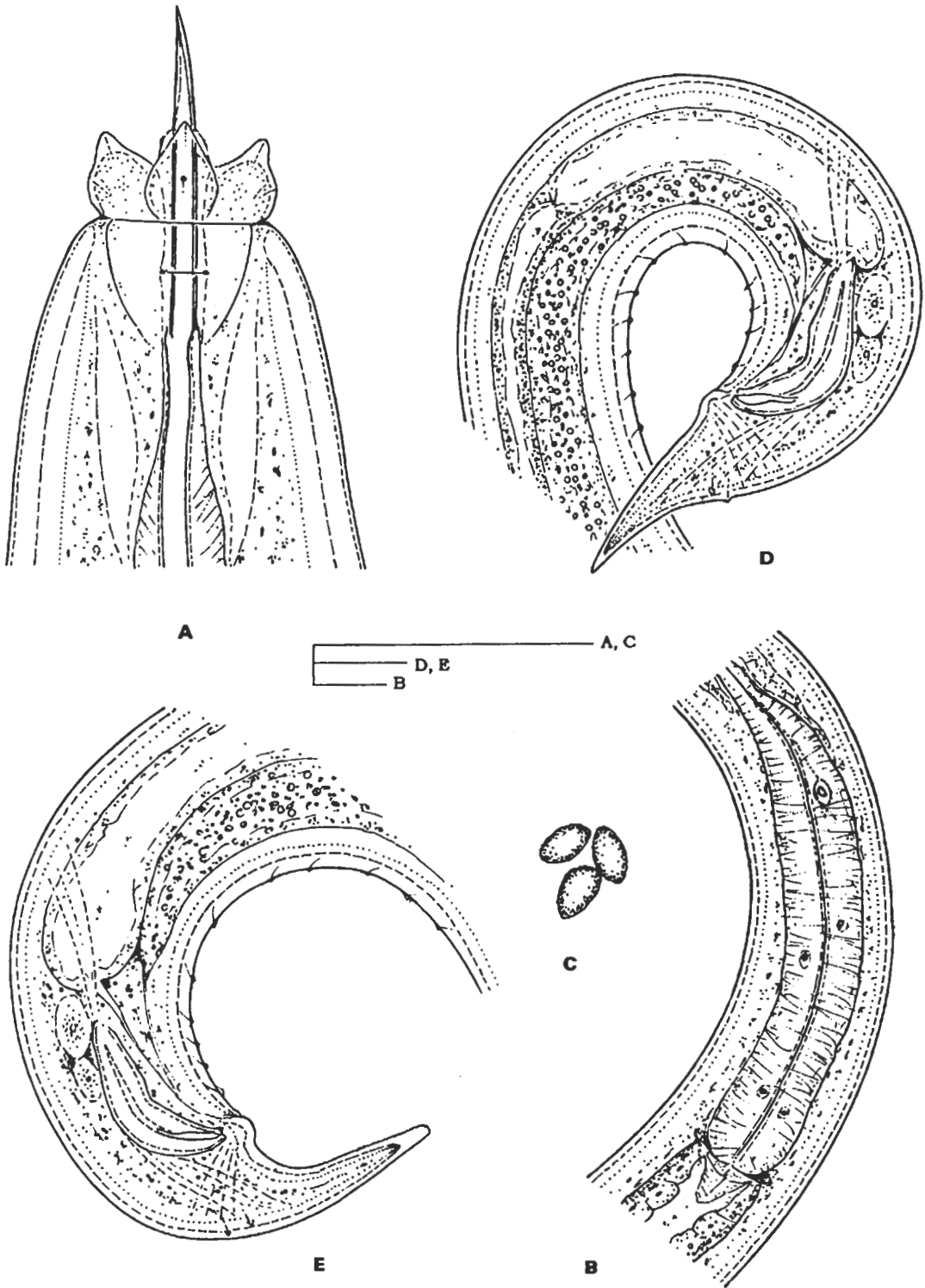


Figure 2. *Oriverutus mascutus* sp. n. A: anterior end with strongly separated head, large lobe-like lips, broad amphid, long and sharply pointed odontostyle; B: posterior half of oesophagus (cylindrus) showing the five gland nuclei; C: spermatozoa; D-E: variation in posterior end of males possessing 10 and 11 ventromedial supplements, respectively, and finely rounded tail tips. (Scale bars 20 μ m each)

Female. Gonad mono-opisthodelphic, as long as 4.5–5.3 body widths or 4.5–5.0 % of body length. Vulva transverse with sclerotized inner lips, located at 3–4 body diameters or 84–118 μm from oesophagus. Vagina 16–18 μm , reaching midway the body diameter. Preovular uterine sac practically absent. Ovary reflexed to two-thirds towards vulva. No mature egg in uterus. Vulva–anus distance equal to 10–13 tail lengths. Tail 42–46 μm , only 4.5–5.0 % of body; conoid, first ventrally curved then slightly dorsally bent. Tip of tail finely rounded. Terminal hyaline portion one-sixth one-fourth of tail length.

Male. Not known.

Larve. Similar to adult female in general habit. Tail as long as 2.5 anal body diameters.

Diagnosis. A medium-sized species with finely annulated cuticle, slightly offset head, long and thin stylet, rather inconspicuous oesophageal nuclei, rectum longer than anal body width, unpaired female gonad, medium long and in posterior half straight tail.

Relationships. Out of the nineteen species regarded so far as valid within the genus, seven species have been described as monodelphic. In them, the length of stylet varies between 10 and 26 μm or 1.3 and 2.5 labial diameters. In having a long and slender stylet (2 labial diameters long), *Oriverutus orientalis* sp. n. resembles *O. longistylus* Ahmad & Jairajpuri, 1987 (stylet 2–2.5 labial diameters long), its body is however longer (0.9–1.0 mm vs. 0.6–0.7 mm), the tail shorter (42–46 μm , 2.3–2.5 anal body widths vs. 60–62 μm , 3.6–5.1 anal body widths) and rounded on tip. In the short and slightly dorsally bent tail it resembles *O. sundarus* (Williams, 1964) Siddiqi, 1971, but the stylet is longer and more slender (1.9–2.0 vs. 1.3–1.6 labial diameters) and a prerectal sack is absent.

Holotype. Female on slide No. 13618. Paratypes: three females and three juveniles, in the collection of the author.

Type locality and habitat. Kiunga, New Guinea, wet humus and soil in a rain forest, July 1969, coll. J. Balogh.

Etymology. This species has the easternmost occurrence within the genus, hence the specific

epithet „*orientalis*” (Latin).

A SURVEY OF THE GENUS *ORIVERUTUS*

Siddiqi erected the genus *Oriverutus* in 1971 and designated *Eudorylaimus sundarus* as type species. He described a new species, *O. lobatus* and shifted three further species to his genus, a species each of *Eudorylaimus (hastatus)*, *Tylencholaimus (hastatus)*, renamed as *hastulatus*) and *Longidorella (impar)*. Siddiqi placed *Oriverutus* to the family Qudsianematidae, and distinguished it from *Eudorylaimus* in having large amphids, attenuated stylet, long dorsal oesophageal gland duct and glandular tissue around the oesophago-intestinal valve.

In the course of years passed, several authors gave additional data to the genus. Ahmad, Baqri, Darekar, Dhanachand, Jairajpuri, Joymati, Khan, Mohilal and Siddiqi described not less than twelve species from India. In addition to them, Andrássy, Carbonell, and Coomans described a species each, namely from Africa and South America. Europa had remained „terra incognita” for long, when, in the nineties, Peña-Santiago and Peralta discovered the first species on the continent.

To the present knowledge, *Oriverutus* is considered to belong to the family Nordiidae rather than to Qudsianematidae.

Prior to this paper, 22 species have been included to *Oriverutus*: 16 species were described under the genus name, and 6 species were shifted from other genera. Of the 22 species, 19 could be regarded as true representatives of the genus *Oriverutus*, while 3 species were transferred to other genera. Together with the presently described two new species the number of the valid species amounts to 21.

As follows, I give an emended diagnosis of the genus *Oriverutus*, and enumerate its species. In order to facilitate the identification, I add a key to the species. As for the evolutionary value is concerned, I agree with Peña-Santiago and Peralta (1995) that the *Oriverutus* species constitute a natural (monophyletic) group and can be characterized in having a comparatively low variation of morphological and anatomical characters.

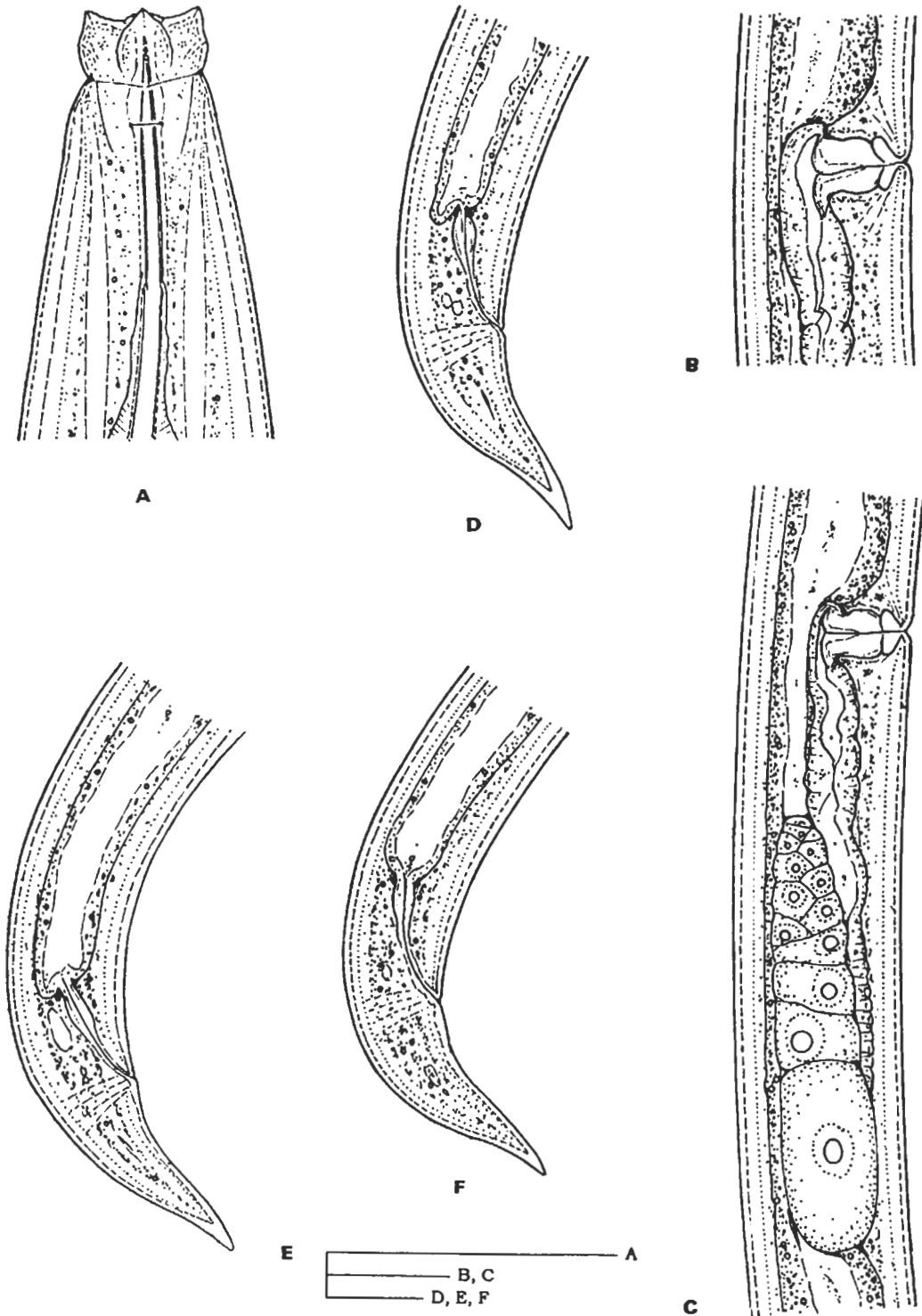


Figure 3. *Oriverutus orientalis* sp. n. A: anterior end with strongly offset labial region, large lips, large amphid and long and sharply tipped stylet; B: vulval region with transverse vulva, sclerotized vulval lips and lacking prevulval uterine sack; C: female genital tract (opisthodelphic) with transverse vulva, strong vagina, uterus, oviduct and ovary; D-E: female posterior ends showing slightly dorsally bent tails with finely rounded tips. (Scale bars 20 μ m each)

Genus *Oriverutus* Siddiqi, 1971

Paroriverutus Carbonell & Coomans, 1982

Mammillonema Darekar & Khan, 1981

Diagnosis. Nordiidae. Smaller nematodes, body length varying between 0.6 and 1.5 mm. Cuticle thin, smooth or finely annulated. Labial region set off from adjacent body, lips separated from one another, often lobe-like with protruding papillae. Amphids unusually large, apertures nearly as wide as corresponding body. Odontostyle varying in length from 10 μ m to 33 μ m, or from 1.2 to 3.3 cephalic diameters, slender to very slender, sharply pointed on its tip. Guiding ring simple, thin. Oesophagus in anterior portion slender, hardly muscular, gradually enlarging posterior to its middle, cylindrus wide and heavily muscular. Oesophageal gland nuclei small, less conspicuous. Female genital organ amphidelphic (in 13 species) or opisthodelphic (in 8 species), vulva transverse, sclerotized. Males rare, known in 10 species. Spicula dorylaimoid. Ventromedial supplements small, separated, 2 to 11 in number. Tails of both sexes similar, conoid, gradually tapering, 2 to 10 anal body widths long, in posterior part often bent dorsally.

Type species: *Oriverutus lobatus* Siddiqi, 1971.

Twenty-one species can be considered valid (see List).

Relationships. Within the family Nordiidae, *Oriverutus* Siddiqi, 1971 has close affinities with the genera *Actinolaimoides* Meyl, 1957 and *Malekus* Thorne, 1974.

The species of *Actinolaimoides* are opisthodelphic with rounded head, amalgamated lips, small labial papillae and not sclerotized pore-like vulva. Seven species are included to this genus: *A. angolensis* (Andrássy, 1963) Siddiqi, 1982, *A. asaccatus* Dhanachand & Jairajpuri, 1980) Siddiqi, 1982, *A. attenuatus* Siddiqi, 1997, *A. impar* (Khan & Khan, 1964) comb. n., *A. peruvianus* Andrásy, 1995, *A. thornei* (Baqri & Jairajpuri, 1976) Siddiqi, 1982 and *A. tobleri* (Menzel & Micoletzky, 1925) Meyl, 1957.

The species of *Malekus* are amphidelphic with offset head, separate lips, protruded labial papillae, needle-like stylet and not sclerotized transverse vulva. Two species belong here: *M. hastatus*

(Andrássy, 1963) Andrásy, 1995 and *M. acridens* Thorne, 1974.

Oriverutus can be differentiated from *Actinolaimoides* by the offset head, separate lips and sclerotized vulva, from *Malekus* by the stronger (not needle-like) stylet and the sclerotized vulva. Males are known in neither *Actinolaimoides* nor *Malekus*.

Remarks. Loof (1985) supposed that *Drepanodorylaimus macramphidius* Andrásy, 1971 is an *Oriverutus* species. In agreement with him, I herewith transfer this species to the present genus, its name thus becoming *Oriverutus macramphidius* (Andrássy, 1971) comb. n. At the same time, *Oriverutus longicaudatus* Ahmad & Siddiqi, 1998 shall be considered a junior synonym of *O. macramphidius* because no essential differences can be observed between them. Both species were described from West Africa.

In having a rounded head, not sclerotized vulva combined with mono-opisthodelphic gonad, *Oriverutus impar* (Khan & Khan, 1964) Siddiqi, 1971 seems to belong to *Actinolaimoides* rather than to *Oriverutus*: its name becoming *Actinolaimoides impar* (Khan & Khan, 1964) comb. n.

Distribution. The species of *Oriverutus* are distributed on five continents: Europe (Spain), Asia (India, Fiji), Africa (Nigeria, Ivory Coast, Cameroon, Mauritius), South America (Columbia, Bolivia, Ecuador, Peru) and Oceania (New Guinea). Europe is represented with one species (*occidentalis*), Asia with thirteen species (*anisi*, *arcuatus*, *asaccatus*, *hastatus*, *hastus*, *labiatus*, *lobatus*, *longistylus*, *mammillatus*, *pagarus*, *papillatus*, *parangulatus*, *sundarus*), Africa with six species (*asaccatus*, *ivorensis*, *lobatus*, *longicaudatus*, *macramphidius*, *sundarus*), South America with four species (*masculus*, *maturitatis*, *microdorus*, *parahastus*) and Oceania with one species (*orientalis*).

List of the *Oriverutus* species

O. anisi Ahmad & Jairajpuri, 1987

O. arcuatus Baqri, 1980

O. asaccatus (Dhanachand & Jairajpuri, 1980) Ahmad & Jairajpuri, 1987

Enchodelium asaccatum Dhanachand & Jairajpuri, 1980

- Actinolaimoides asaccatus* (Dhanachand & Jairajpuri, 1980) Siddiqi, 1982
- O. hastatus* (Siddiqi, 1964) Siddiqi, 1971¹
Tylencholaimus hastatus Siddiqi, 1964
Oriverutus hastulatus Siddiqi, 1971
- O. hastus* Ahmad & Jairajpuri, 1982
- O. ivorensis* (Carbonell & Coomans, 1982) Ahmad & Siddiqi, 1998
Paroriverutus ivorensis Carbonell & Coomans, 1982
- O. labiatus* Ahmad & Jairajpuri, 1987
- O. lobatus* Siddiqi, 1971
- O. longistylus* Ahmad & Jairajpuri, 1987
- O. macramphidius* (Andrássy, 1971) comb. n.
Drepanodorylaimus macramphidius Andrásy, 1971
Oriverutus longicaudatus Ahmad & Siddiqi, 1998 (syn. n.)
- O. mammillatus* (Darekar & Khan, 1981) Jairajpuri & Ahmad, 1992
Mammillonema mammillatum Darekar & Khan, 1982
- O. masculus* sp. n.
- O. maturitatis* Andrásy, 1995
- O. microdorus* Ahmad & Siddiqi, 1998
- O. occidentalis* Peña-Santiago & Peralta, 1995
- O. orientalis* sp. n.
- O. pagarus* Ahmad & Jairajpuri, 1987
- O. papillatus* Ahmad & Siddiqi, 1998
- O. parahastus* Ahmad & Siddiqi, 1998
- O. parangulatus* Baqri, 1991
- O. sundarus* (Williams, 1964) Siddiqi, 1971
Eudorylaimus sundarus Williams, 1964
- Eudorylaimus hastatus* Andrásy, 1963
Enchodorella hastata (Andrássy, 1963) Siddiqi, 1964
Longidorella hastata (Andrássy, 1963) Jairajpuri & Hooper, 1968
Oriverutus hastatus (Andrássy, 1963) Siddiqi, 1971
- Actinolaimoides impar* (Khan & Khan, 1964) comb. n.
Longidorella impar Khan & Khan, 1964
Oriverutus impar (Khan & Khan, 1964) Siddiqi, 1971
- Acephalodorylaimus attenuatus* Ahmad & Jairajpuri, 1983
Oriverutus prodelphus Dhanachand, Mohilal & Joymati, 1992

**Key to the species of *Oriverutus*
(females and males)**

- 1 Tail long, 7–10 anal body diameters 2
- Tail shorter, 2 to 6 anal body diameters..... 3
- 2 Tail 110–150 µm long. - ♀: L = 1.1–1.4 mm; a = 34–47; b = 3.5–5.3; c = 8–10; c' = 6.5–9.5; V = 48–53 %. ♂ unknown. *macramphidius* (Andrássy)
- Tail 200–230 µm long. - ♀: L = 1.3–1.5 mm; a = 31–37; b = 3.8–4.4; c = 6.2–6.9; c' = 8.4–9.0; V = 44–46 %. ♂: L = 1.3–1.5 mm; a = 32–39; b = 3.7–4.3; c = 6.2–6.6; PO: 4–5..... *ivorensis* (Carbonell & Coomans)
- 3 Large species, 1.2–1.5 mm; stylet 22–24 µm long. - ♀ unknown. ♂: L = 1.2–1.4 mm; a = 29–31; b = 3.9–4.5; c = 24–30; c' = 1.8–2.0; PO: 10–11 *masculus* sp. n.
- Smaller species, around 1 mm, only exceptionally longer; stylet generally well under 20 µm 4
- 4 Female genital system mono-opisthodelphic. 5
- Female genital system amphidelphic 12
- 5 Stylet 2.0 to 2.5 labial diameters long 6
- Stylet 1.5 to 1.8 labial diameters long 7
- 6 Stylet very thin, needle-like; body 0.6–0.7 mm. - ♀: L = 0.6–0.7 mm; a = 24–30; b = 3.0–3.5; c = 10–12; c' = 3.6–5.1; V = 37–42 %. ♂ unknown *longistylus* Ahmad & Jairajpuri

Species transferred to other genera

Malekus hastatus (Andrássy, 1963) Andrásy, 1995

¹ When transferred *Tylencholaimus hastatus* Siddiqi, 1964 and *Eudorylaimus hastatus* Andrásy, 1963 to *Oriverutus*, Siddiqi (1971) renamed his species as *O. hastulatus*. Since these species belong at present to different genera, the homonymy is absent and the original name *hastatus* should be reinstated.

- Stylet thicker, not needle-like; body 0.9–1.0 mm. - ♀: L = 0.9–1.0 mm; a = 30–32; b = 3.1–3.6; c = 21–22; c' = 2.3–2.5; V = 39–43 %. ♂ unknown *orientalis* sp. n.
- 7 Larger animals, 1.0–1.5 mm 8
- Smaller animals, 0.6–0.8 mm 9
- 8 Prerectum with a short dorsal blind sack; stylet 16–18 µm long. - ♀: L = 0.9–1.3 mm; a = 24–37; b = 3.8–4.4; c = 6.2–6.9; c' = 2–3; V = 44–46 %. ♂: L = 1.3–1.5 mm; a = 32–39; b = 3.7–4.3; c = 6.2–6.6; PO: 3. *sundarus* (Williams)
- Prerectum without blind sack; stylet 20–22 µm long. - ♀: L = 1.1–1.3 mm; a = 30–42; b = 3.3–3.5; c = 16–20; c' = 2.8–3.3; V = 39–43 %. ♂ unknown. *occidentalis* Peña-Santiago & Peralta
- 9 Stylet short, about 10 µm; tail short, two anal body widths. - ♀: L = 0.6–0.7 mm; a = 32–37; b = 3.1–3.4; c = 23–26; c' = 1.7–2.0; V = 46–50 %. ♂ unknown. .. *microdorus* Ahmad & Siddiqi
- Stylet longer, to 18–19 µm; tail as long as 3–5 anal body widths 10
- 10 Tail 3–4 anal body diameters long, slightly ventrally arcuate. - ♀: L = 0.6–0.8 mm; a = 22–30; b = 3.2–4.0; c = 12–19; c' = 3–4; V = 38–43 %. ♂ unknown. *asaccatus* (Dhanachand & Jairajpuri)
- Tail 4–5 anal body diameters long, slightly dorsally arcuate 11
- 11 Stylet 16–19 µm long. - ♀: L = 0.6–0.8 mm; a = 20–37; b = 3.0–3.3; c = 10–14; c' = 3.5–5.0; V = 37–43 %. ♂ unknown. *lobatus* Siddiqi
- Stylet 13 µm long. ♀: L = 0.8 mm, a = 30; b = 3.4, c = 11; c' = 4, V = 41 %. ♂ unknown. *hastatus* (Siddiqi)
- 12 Tail ventrally curved 13
- Tail in distal part straight or dorsally bent . 16
- 13 Tip of tail sharp 14
- Tip of tail rounded 15
- 14 Ventromedial supplements 6, posteriormost in spicula range. - ♀: L = 1.1 mm; a = 29; b = 3.8; c = 15; c' = 1.9; V = 55 %. ♂: L = 1.1 mm; a = 32; b = 3.8; c = 19; PO: 6 *arisi* Ahmad & Jairajpuri
- Ventromedial supplements 8 or 9, all before the spicula. - ♀: L = 1.0–1.2 mm; a = 26–28; b = 3.2–3.9; c = 20–22; c' = 2.2–2.6; V = 48–53 %.
- ♂: L = 1.1–1.5 mm; a = 31–32; b = 3.6; c = 22–26; PO: 8–9 .. *pagarus* Ahmad & Jairajpuri
- 15 Tail 4 anal body widths long, strongly curved ventrally; stylet 13–14 µm, supplements 3. - ♀: L = 0.8 mm; a = 33; b = 3.7; c = 15; c' = 4; V = 50 %. ♂: L = 0.8 mm; a = 37; b = 4.0; c = 13; PO: 3 *arcuatus* Baqri
- Tail 3 anal body widths long, slightly curved ventrally; stylet 17–19 µm; supplements 6. - ♀: L = 1.0–1.1 mm; a = 27–38; b = 3.6–3.7; c = 17–22; c' = 2.8–3.0, V = 50–53 %. ♂: L = 1.0–1.2 mm; a = 30–32; b = 3.6–3.7, c = 20–22; PO: 6 *parangulatus* Baqri
- 16 Lip region narrow, hardly separated from neck 17
- Lip region wide, strongly separated from neck 18
- 17 Stylet 13–14 µm, as long as 1.4–1.6 labial diameters. - ♀: L = 0.9 mm; a = 30–34; b = 3.0–3.8; c = 19–20; c' = 2.3–2.4; V = 49–50 %. ♂: L = 0.9–1.0 mm; a = 34–42; b = 3.0–3.8; c = 18–23; PO: 2 *hastus* Ahmad & Jairajpuri
- Stylet 18–23 µm, as long as 2.6–3.3 labial diameters. - ♀: L = 0.7–0.8 mm; a = 24–29; b = 3.5–3.7; c = 10–11; c' = 4.0–4.6; V = 59–60 %. ♂ unknown. *parahastus* Ahmad & Siddiqi
- 18 Stylet 25 µm long. - ♀: L = 1.1–1.2 mm; a = 34–38; b = 3.2–3.5, c = 20–22; c' = 2.4–2.6; V = 48–50 %. ♂ unknown..... *papillatus* Ahmad & Siddiqi
- Stylet 13 to 17 µm long 19
- 19 Body longer, 1.1–1.2 mm, tail about 4 anal body widths long. - ♀: L = 1.1–1.2 mm; a = 45–47; b = 3.5–4.0; c = 19–20; c' = 3.5–4.0; V = 52–55 %. ♂: L = 1.1–1.2 mm; a = 54–56; b = 3.5–3.7, c = 15–16; PO: 7 *mammillatus* (Darekar & Khan)
- Body shorter, 0.8–1.0 mm; tail 2–3 anal body widths long 20
- 20 Sclerotized pieces in vulva parallel to body axis; lips lobe-like with strongly protruding papillae. - ♀: L = 0.9–1.0 mm; a = 31–37; b = 3.4–3.8, c = 21–24; c' = 2.3–2.6; V = 52–60 %. ♂ unknown. *labiatus* Ahmad & Jairajpuri
- Sclerotized pieces in vulva directed at right angles to body axis; lips not lobe-like, papillae moderately protruding. - ♀: L = 0.8–0.9 mm; a = 24–30; b = 3.2–3.8; c = 17–21; c' = 2.5–3.3; V = 44–49 %. ♂: L = 1.0 mm; a = 30; b = 3.5; c = 28; PO: 7 *maturitatis* Andrássy

Key to males of *Oriverutus* species

- 1 Tail filiform, 8 anal body widths long
..... *ivorensis* (Carbonell & Coomans)
- Tail short, conoid, 3-4 anal body widths long .
..... 2
- 2 Supplements 2 or 3 3
- Supplements 6 to 11 5
- 3 Posteriormost supplement within range of
spicula, tail ventrally arcuate .. *arcuatus* Baqri
- Posteriormost supplement before spicula 4
- 4 Stylet 13-14 µm long; supplements 2
..... *hastus* Ahmad & Jairajpuri
- Stylet 16-19 µm long; supplements 3
..... *sundarus* (Williams)
- 5 Supplements 10-11; stylet 20-22 µm long
..... *masculus* sp. n.
- Supplements 6-9; stylet 13-19 µm long 6
- 6 Tail dorsally bent 7
- Tail ventrally bent 8
- 7 Supplements large, mammillate
..... *mammillatus* (Darekar & Khan)
- Supplements minute *maturitatis* Andrássy
- 8 Posteriormost supplement in spicula range
..... *arisi* Ahmad & Jairajpuri
- Posteriormost supplement before spicula 9
- 9 Supplements 6 *parangulatus* Baqri
- Supplements 8-9
..... *pagarus* Ahmad & Jairajpuri

REFERENCES

AHMAD, W. & JAIRAJPURI, M. S. (1982): Some new and known species of Dorylaimoidea. *Nematologica*, 28: 39-61.

AHMAD, W. & JAIRAJPURI, M. S. (1983): Three new and two known species of dorylaim nematodes with proposal of *Acephalodorylaimus* n. gen. *Nematologica*, 28: 233-246.

AHMAD, W. & JAIRAJPURI, M. S. (1987): Studies on the genus *Oriverutus* (Nematoda: Dorylaimida). *Nematologica*, 33: 10-21.

AHMAD, W. & PERA-SANTIAGO, R. (2001): On the status of *Oriverutus prodelphus* Dhanachand, Mohilal & Joy-

mati, 1992. *Journal of Nematode Morphology and Systematics*, 4: 47-48.

AHMAD, W. & SIDDIQI, M. R. (1998): Four new and one known species of *Oriverutus* Siddiqi (Dorylaimida) from tropical rain forests. *International Journal of Nematology*, 7: 182-189.

ANDRASSY, I. (1963): Freilebende Nematoden aus Angola. I. Einige moosbewohnende Nematoden. *Servicos Culturais de Companhia de Diamantes de Angola*, 66: 57-79.

ANDRASSY, I. (1971): Freilebende Nematoden aus Angola. II. Über zwei *Drepanodorylaimus*-Arten. *Servicos Culturais de Companhia de Diamantes de Angola*, 84: 47-54.

ANDRASSY, I. (1995): Tropical nematodes of rare genera (Dorylaimida). *Opuscula Zoologica Universitatis Budapestinensis*, 27-28: 5-24.

BAQRI, Q. H. (1980): Two new species of Dorylaimidae (Dorylaimida: Nematoda) from Tamil Nadu, India. *Bulletin of Zoological Survey of India*, 2: 139-143.

BAQRI, Q. H. (1991): Contribution to the fauna of Sikkim. Nematodes associated with citrus from Sikkim, India. *Occasional Papers of Zoological Survey of India*, 128: 1-103.

CARBONELL, E. & COOMANS, A. (1982): *Paroriverutus ivorensis* n. gen., n. sp. from Ivory Coast (Nematoda). *Revue de Zoologie Africaine*, 96: 898-904.

DAREKAR, K. S. & KHAN, E. (1981): Soil and plant parasitic nematodes from Maharashtra, India. VIII. *Mammillonema mammilatus* gen. n., sp. n. (Dorylaimida: Nematoda). *Indian Journal of Nematology*, 112: 176-179.

DHANACHAND, CH. & JAIRAJPURI, M. S. (1980): Four new and one known species of Dorylaimida from Manipur, India. *Indian Journal of Nematology*, 120: 152-165.

DHANACHAND, CH., MOHILAL, N. & JOYMATI, L. (1992): *Tylencholaimus minutus* n. sp. and *Oriverutus prodelphus* n. sp. (Nematoda: Dorylaimida) from Manipur. *Current Nematology*, 3: 149-152.

JAIRAJPURI, M. S. & AHMAD, W. (1992): Dorylaimida. Free-living, predaceous and plant-parasitic nematodes. *New Delhi*, pp. 458.

KHAN, E. & KHAN, S. H. (1964): *Longidorella impar* n. sp. (Nematoda: Longidorinae) from North India. *Zoologischer Anzeiger*, 173: 345-347.

LOOF, P. A. A. (1985): Taxonomic studies on the genus *Prodorylaimus* Andrássy, 1959 (Nematoda: Dorylaimida). *Revue de Nématologie*, 8: 193-213.

- PENA-SANTIAGO, R. & PERALTA, M. (1995): Nematodes of the order Dorylaimida from Andalucía Oriental, Spain. *Oriverutus occidentalis* sp. n. and a compendium of the genus. *Afro-Asian Journal of Nematology*, 5: 204–208.
- SIDDIQI, M. R. (1964): Six new nematode species in the superfamily Dorylaimoidea from India. *Labdev Journal of Science and Technology*, 2: 136–144.
- SIDDIQI, M. R. (1971): *Oriverutus lobatus* gen. n., sp. n. and *Sicaguttur sartum* gen. n., sp. n. (Nematoda: Dorylaimoidea) from cultivated soils in Africa. *Nematologica*, 16: 483–491.
- WILLIAMS, J. R. (1964): Studies on the nematode soil fauna of sugar cane fields in Mauritius. 6. *Eudorylaimus sundarus* n. sp. (Dorylaimidae). *Nematologica*, 10: 319–322.