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*SICORINEMA* GEN. N. AND *MOSHAJIA* GEN. N.  
(DORYLAIMIDA: CRATERONEMATIDAE) WITH  
DESCRIPTIONS OF FOUR NEW SPECIES

by  
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Two new genera of dorylaimid nematodes, *Sicorinema* and *Moshajia*, are proposed in the family Crateronematidae Siddiqi, 1969. Both are characterized by a wide lumened odontostyle bearing a large aperture. Two new species of each of these genera are described below and *Lordellonema warriari* Jairajpuri, 1965 is transferred to *Moshajia*.

The nematodes for this study were heat-killed, fixed in a 3-5% solution of formaldehyde and mounted in dehydrated glycerine by processing through warm lactophenol.

*SICORINEMA* GEN. N.

*Diagnosis:* Crateronematidae. Body small-sized (less than 1 mm long); pores indistinct. Cuticle thin, finely annulated. Lip region offset by constriction; lips and papillae distinct. Stoma wide, walls not sclerotized. Odontostyle with wide lumen and aperture more than half its length. Odontophore also wide-lumened, dorylaimoid. Oesophagus muscular, enlarging behind middle. Vulva small, pore-like. Reproductive system monodelphic, opisthodelphic. Tail conoid to a small rounded terminus.

*Type-species:* *Sicorinema sericatum* gen. n., sp. n.

*Other species:* *S. colombiense* sp. n.

*Relationship:* *Sicorinema* gen. n. is unique among Crateronema-

tidae in having a monodelphic, opisthodelphic reproductive system. It further differs from *Crateronema* Siddiqi, 1969, *Poronemella* Siddiqi, 1969 and *Lordellonema* Andrásy, 1959 in having a wide unsclerotized stoma and an odontostyle with an aperture more than half its length and from *Moshajia* gen. n. in having indistinct body pores and a thin, annulated cuticle devoid of fixation folds.

The generic name is derived from Latin *Sica* = dagger, *oris* = mouth and *nema* for nematode, and is neuter in gender.

*Sicorinema sericatum* gen. n., sp. n. (Fig. 1, A-I)

*Measurements:* Holotype ♀: L = 0.84 mm; a = 34; b = 3.1; c = 14.7; c' = 3.8; V = 44; odontostyle = 11.2 μm; odontophore = 18 μm.

Paratypes: 25 ♀ ♀: L = 0.73-0.90 (0.81) mm; a = 30-39 (35); b = 3.1-3.9 (3.5); c = 13-16 (14.5); c' = 3.6-4.2 (3.9); V = 40-46 (43); odontostyle = 10-13 (11.5) μm; odontophore = 17-24 (20) μm.

*Description: Female:* Body slender, ventrally arcuate. Cuticle thin, regular, finely annulated, annules about 0.9 μm wide. Lateral hypodermal chords about one-fourth body width, lateral pores indistinct, widely spaced; ventral pores also indistinct, 2-4 in oesophageal region and 3-5 in rest of the body. Lip region wider than adjacent body with raised lips and papillae. Amphid apertures about half as long as lip region width. Stoma wide, squarish in lateral view. Odontostyle about one lip region width long, with 7 μm long aperture, and lumen about 2.5 μm wide. Odontophore with wide lumen. Oesophagus muscular 210-260 (237) μm long; enlarged portion about 105-110 μm long or 39-44% of entire length of oesophagus. Oesophago-intestinal valve heart-shaped. Distance between anterior end of body to vulva 320-390 (347) μm. Vulva a small, transversely oval pore (Fig. 1, I) leading into a transverse vagina which becomes cross-shaped near uterus. Only posterior branch of reproductive system present. Ovary with about 10 oocytes. Intestine thin-walled and with a wide lumen. Prerectum about twice body width long. Rectum about 1.5 times anal body width long. Tail ventrally arcuate, regularly tapering to a small rounded terminus; inner protoplasmic mass reaching near to tail tip. Male not found and uterus does not contain sperm.

*Type habitat and locality:* Soil around roots of mature rubber trees near the junction of Ore, Owo and Benin City Roads, Nigeria.

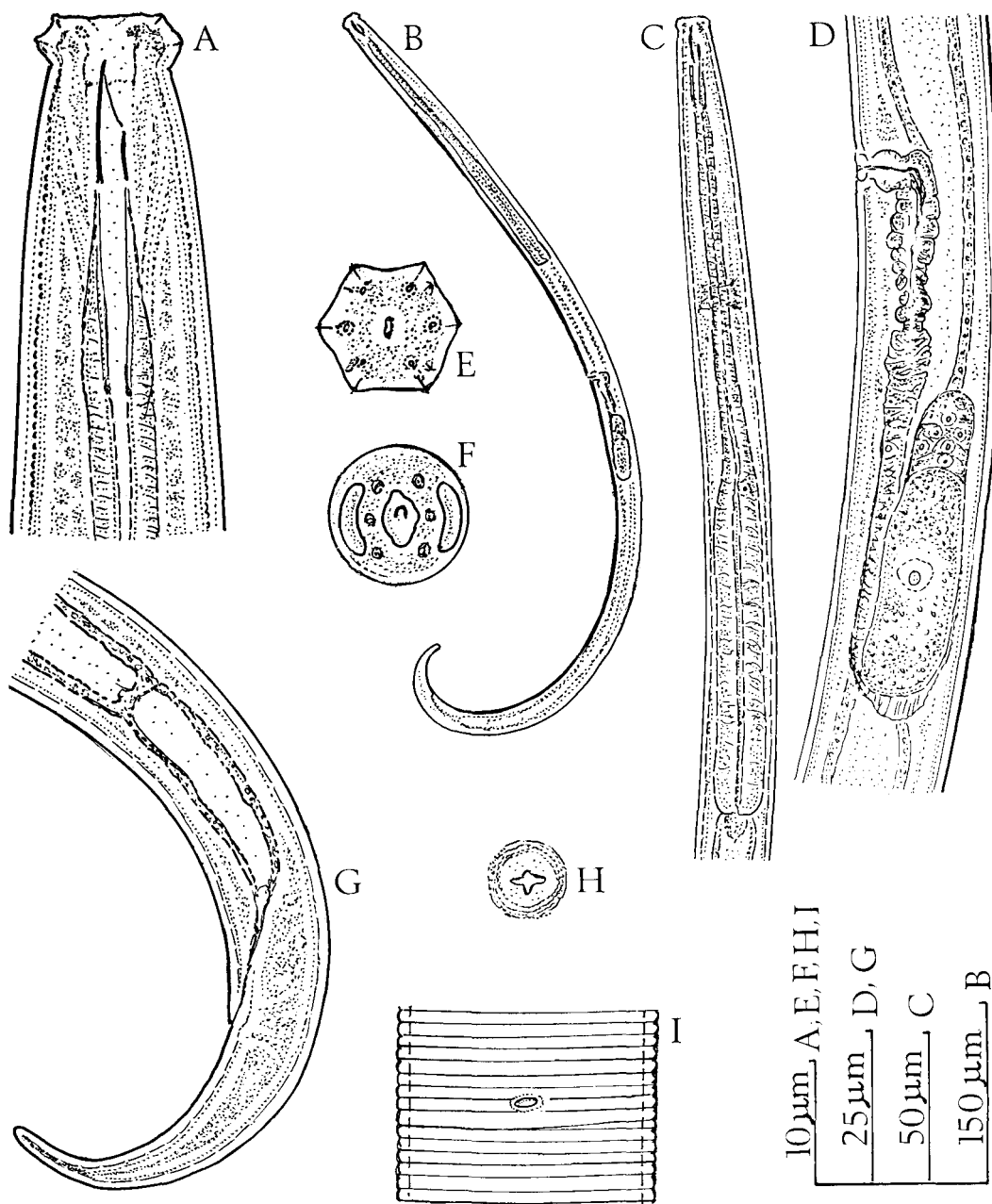


Fig. 1 - *Sicorinema sericatum* gen. n., sp. n. A. Head end. B. Entire female. C. Oesophageal region. D. Reproductive system. E. *En face* view. F. Cross-section of body at amphid. G. Tail end. H and I. Vagina and vulva, respectively, in ventral view. E, F, H and I. Paratype females, remainder holotype female.

*Type specimens:* Sample collected by Fields E. Caveness on 4th March, 1978. Holotype ♀ and 9 ♀ ♀ paratypes at C.I.P., St. Albans, England. 4 ♀ ♀ paratypes each at Rothamsted Experimental Station (R.E.S.), Harpenden, England; Landbouwhogeschool, Wageningen, Holland; Indian Agricultural Research Institute (I.A.R.I.), New Delhi, India; USDA Nematology Laboratory, Beltsville, Maryland, USA.

*Sicorinema colombiense* sp. n. (Fig. 2, A-F)

*Measurements:* Holotype ♀: L = 0.78 mm; a = 28; b = 3.4; c = 26; c' = 2; V = 48<sup>-15</sup>; odontostyle = 12 µm; odontophore = 22 µm.

Paratypes: 5 ♀ ♀: L = 0.62-0.74 (0.7) mm; a = 25-32 (28); b = 2.9-3.5 (3.3); c = 20-24 (22); c' = 2.0-2.2 (2.1); V = 47-51 (48.5); odontostyle = 10-12 (11) µm; odontophore = 22-23 (22.5) µm.

*Description: Female:* Body ventrally curved. Cuticular annules 0.9-1 µm wide near mid-body; body pores indistinct. Lateral hypodermal chords one-fourth body width. Lip region wider than adjacent body, with raised lips and papillae. Amphid apertures oval, about half as long as lip region width. Odontostyle typical of the genus; aperture 7 µm long. Odontophore bulboid posteriorly. Total length of stylet (= odontostyle and odontophore) 32-35 µm. Stylet guiding ring large, its diameter about one-third lip region width. Oesophagus 210-213 µm long; enlarged portion 81-85 µm long or 38-39 percent of total oesophageal length. Oesophago-intestinal valve heart-shaped. Vulva a small pore. Vagina about two-fifths body width long, not sclerotized. Monodelphic, opisthodelphic. Ovary with 8-10 oocytes. No sperm in uterus. Intestine thin-walled, lumen somewhat collapsed. Prerectum 30-36 µm long. Rectum longer than anal body width. Tail ventrally arcuate, tapering to a small rounded tip, 2-2.2 times anal body width long.

*Type habitat and locality:* Soil around roots of grass in rain forest, near Araracuara, Amazonas, Colombia.

*Type specimens:* Collected by Ms. Kate Williamson during Colombian Amazonas Expedition in 1977. Holotype ♀ and 1 ♀ paratype at C.I.P., St. Albans; 1 ♀ paratype each at: R.E.S. Harpenden; Landbouwhogeschool, Wageningen; I.A.R.I., New Delhi; USDA., Beltsville.

*Relationship:* *Sicorinema colombiense* sp. n. differs from *S. sericatum* sp. n. in having vulva located more posteriorly at 47-51 percent and a shorter tail about two anal body widths long.

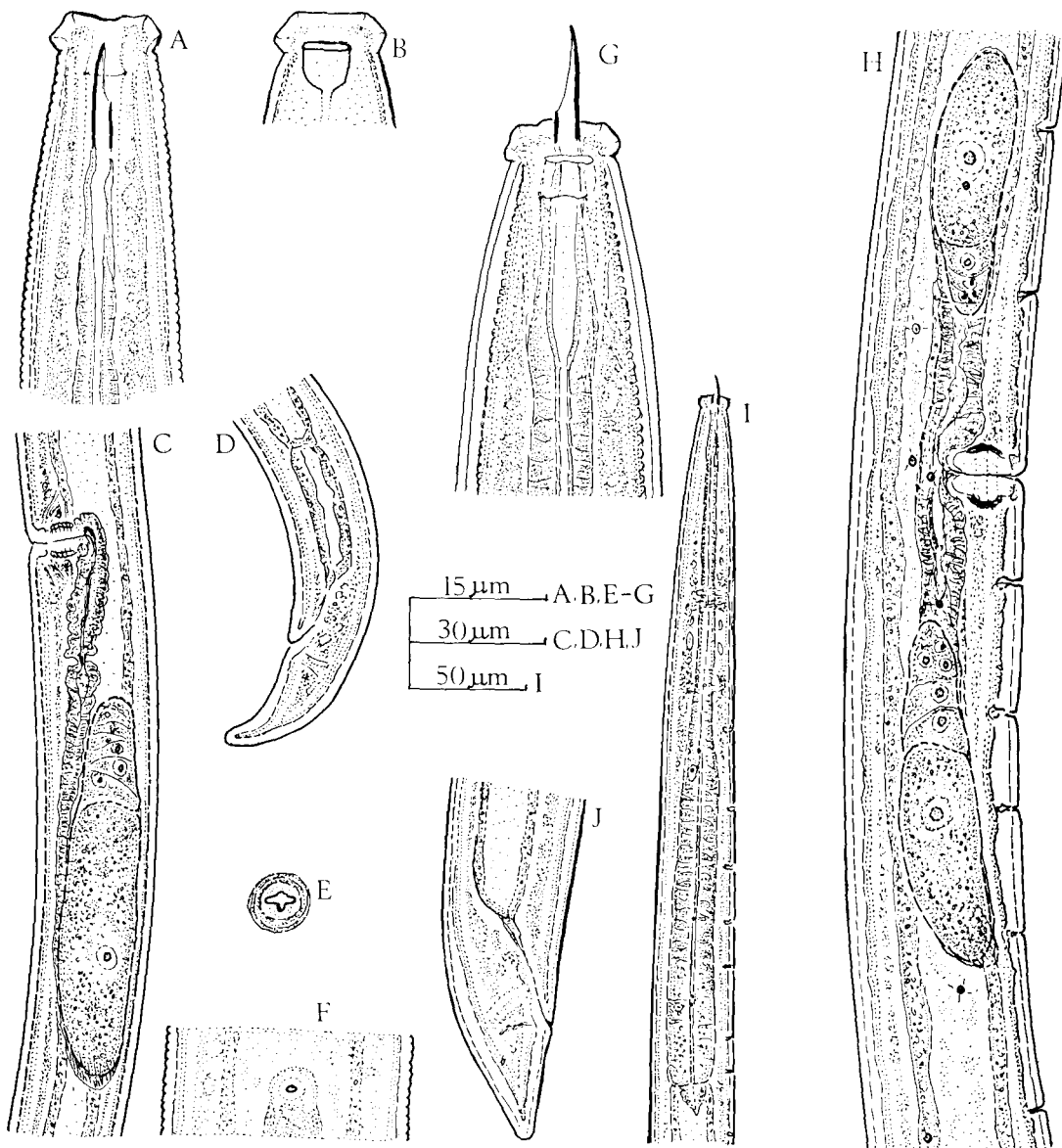


Fig. 2 - A-F. *Sicorinema colombiense* sp. n. G-J. *Moshajia cultristyla* sp. n. A and G. Head ends. B. Amphid. C and H. Reproductive system. D and J. Tail ends. E and F. Vagina and vulva, respectively, in ventral view. I. Oesophageal region. E and F. Paratypes, remainder holotypes.

## MOSHAJIA GEN. N.

*Diagnosis:* Crateronematidae. Body medium sized (about 1 mm or longer). Cuticle irregular with fixation folds. Body pores conspicuous, leading into prominent cuticular canals; lateral pores widely spaced; ventral pores present along entire length of body; dorsal pores present only in anterior region. Lip region offset by a constriction; lips and papillae raised. Odontostyle with wide lumen and aperture over half its length. Odontophore dorylaimoid, with wide lumen. Stoma wide, not sclerotized; stylet guiding ring single, large, at base of lip region. Oesophagus very muscular, gradually enlarging at or behind middle. Didelphic, amphidelphic. Vulva pore-like. Tails conoid to subdigitate. Spicules not dorylaimoid, lacking median stiffening piece. Ventro-median supplements numerous, spaced.

*Type-species:* *Moshajia idiofora* gen. n., sp. n.

*Other species:* *M. cultristyla* sp. n.; *M. warriari* (Jairajpuri, 1965) comb. n., syn. *Lordellonema warriari* Jairajpuri, 1965.

*Relationship:* *Moshajia* gen. n. differs from *Lordellonema* Andrassy, 1959 in having an odontostyle with aperture more than half its length, odontostyle and odontophore with a wider lumen and wider stoma lumen. From *Poronemella* Siddiqi, 1969 it differs in the structure of the stoma and odontostyle and not having the ventral body pores limited to the oesophageal region.

The new genus is named after Dr. Mohammad Shamim Jairajpuri who first described a species now assigned to this genus; it is neuter in gender.

*Moshajia idiofora* gen. n., sp. n. (Fig. 3, A-F)

*Measurements:* Holotype ♀: L = 1 mm; a = 30; b = 3.7; c = 23; c' = 2.6; V = <sup>7</sup>51<sup>-9</sup>; odontostyle = 11 µm; odontophore = 21 µm.

Paratypes: From potato soil, Limbe, Malawi; 9 ♀ ♀: L = 0.77-1.01 (0.84) mm; a = 25-36 (30); b = 3.2-3.9 (3.6); c = 24-28 (26); c' = 1.9-2.4 (2.1); V = 50-53 (51); odontostyle = 8-13 (11.5) µm; odontophore = 18-22 (20) µm; oesophagus = 225-250 (235) µm.

1 ♂: L = 0.87 mm; a = 27; b = 3.5; c = 23.5; c' = 2; odontostyle = 12 µm; odontophore = 21 µm; spicules = 38 µm.

From lucerne soil, South Kilimanjaro, Tanzania; 3 ♀ ♀: L = 1.14-

1.2 (1.17) mm; a = 37-38 (37.5); b = 4.4-4.6 (4.5); c = 32-34 (33); c' = 1.9-2.1 (2); V = 50-54 (52); odontostyle = 10.5-12 (11.5)  $\mu\text{m}$ ; odontophore = 20-22 (21)  $\mu\text{m}$ ; oesophagus = 245-268 (258)  $\mu\text{m}$ .

*Description: Female:* Body slightly arcuate. Cuticle irregular, finely striated; lateral hypodermal chords 5-6  $\mu\text{m}$  wide. Body pores distinct (hence the species name); ventral pores 6-8 (7) in oesophageal region, 3-6 (4) between oesophagus and vulva and 7-12 (10) between vulva and anus. In three females from Tanzania with longer bodies (see above) the ventral pores were 6-8 in oesophageal region, 9-11 between oesophagus and vulva and 10-13 between vulva and anus. Dorsal pores 2-3 in anterior oesophageal region. Lip region aporcelainid, with elevated lips and papillae, about as wide as adjacent body and offset by a deep constriction. Amphidial apertures large, half as long as lip region width. Stoma in lip region wide, cylindrical, ending in guiding ring about one-third lip region width in diameter. Odontostyle usually as long as lip region width, with aperture 7-9  $\mu\text{m}$  or about two-thirds of odontostyle length; lumen of odontostyle and odontophore about 3  $\mu\text{m}$  wide. Oesophagus muscular, gradually enlarging at about 55 percent of its length. Enlarged part of oesophagus 106-117  $\times$  14-20  $\mu\text{m}$ , its posterior two-fifths wider and appearing less muscular than anterior part. Orifice of dorsal gland near oesophageal enlargement, a little anterior to dorsal gland nucleus. Anterior subventral glands in middle of oesophageal enlargement; posterior subventral gland orifices at about one body width anterior to oesophageal base. Oesophago-intestinal valve heart-shaped. Intestine with wide lumen. Prerectum and rectum 42 to 68  $\mu\text{m}$  and 22 to 34  $\mu\text{m}$ , respectively. Vulva a large pore. Vagina about two-fifths body width long, anteriorly not sclerotized. Two branches of reproductive organs extend in opposite directions, reflexed at oviduct. Ovaries with 10-15 oocytes. Uterine egg 137  $\times$  23  $\mu\text{m}$ . Tail conoid, minutely rounded with finely drawn out inner protoplasmic core reaching near to tail tip, 1.9-2.4 times anal body width long; 1-2 pairs of lateral caudal pores present; ventral pores not reaching tail.

*Male:* Similar to female in most details. Testes paired, dorylaimoid. Sperm oval to spindle-shaped, 4-5  $\mu\text{m}$  long. Spicules arcuate, rather cylindroid, lacking median stiffening piece; lateral guiding piece of spicule cylindroid, 6  $\mu\text{m}$  long. Paired, ventrosubmedian papillae 7  $\mu\text{m}$  from cloacal aperture. A series of 8 ventromedian papillae

being 38  $\mu\text{m}$  in front of paired papillae and extending over 80  $\mu\text{m}$ . Tail similar to that of female, with two pairs of lateral pores.

*Type habitat and locality:* Soil around roots of potato (*Solanum tuberosum* L.) at Limbe, Malawi. Also collected from lucerne soil at South Kilimanjaro, Tanzania.

*Type specimens:* Collected in 1968. Holotype ♀ and 4 ♀♀ paratypes at C.I.P., St. Albans. 2 ♀♀ paratypes each at these centres: R.E.S., Harpenden; Landbouwhogeschool, Wageningen; I.A.R.I., New Delhi; U.S.D.A., Beltsville.

*Relationship:* *Moshajia idiofora* sp. n. differs from *M. warriari* (Jairajpuri, 1965) comb. n. in having a smaller body-size, fewer dorsal body pores and tail over one body-width long making  $c = 24-34$  ( $L = 1.7-2.3$  mm; dorsal pores 20; tail less than anal body width long;  $c = 67-78$  in *M. warriari*).

*Moshajia cultristyla* sp. n. (Fig. 2, G-J)

*Measurements:* Holotype ♀:  $L = 1.14$  mm;  $a = 32$ ;  $b = 3.7$ ;  $c = 39$ ;  $c' = 1.3$ ;  $V = 8-54-9.6$ ; odontostyle = 13  $\mu\text{m}$ ; odontophore = 22  $\mu\text{m}$ .

Paratypes: 4 ♀♀:  $L = 0.97-1.18$  (1.07) mm;  $a = 30-39$  (33);  $b = 3.6-4.0$  (3.7);  $c = 37-43$  (39);  $c' = 1.3-1.6$  (1.5);  $V = 52-54$  (53); odontostyle = 13-15 (14)  $\mu\text{m}$ ; odontophore = 15-22 (18)  $\mu\text{m}$ .

*Description: Female:* Body ventrally arcuate. Cuticle irregular, finely striated. Lateral hypodermal chords 9-11 (10)  $\mu\text{m}$  wide, about one-third body width; lateral pores prominent, widely spread; ventral pores not all in a midventral line but lie on or close to it, at places appearing to form two rows. They number 6-10 in oesophageal region, 8-10 between oesophagus and vulva and 11-17 in postvulval region. Dorsal pores 1-3, located anteriorly. Lip region aporcelainoid with raised lips and papillae. Odontostyle with wide lumen, sharply pointed tip and a large aperture 8-10  $\mu\text{m}$  long, just over one lip region width long, appears as a wide-bladed knife in optical section (hence the species name); protruded in all specimens. Odontophore wide lumened, dorylaimoid. Enlarged part of oesophagus 127-156 (142)  $\mu\text{m} \times 19-20$   $\mu\text{m}$ , 47-51 (49) percent of oesophageal length. Vulva a large pore. Vagina 2/5 body width long; vaginal mass spheroidal; light vaginal sclerotization near vulva. Didelphic, amphidelphic. Ovaries with less than 10 oocytes. No sperm in uteri. Prerectum 77-84  $\mu\text{m}$  or about 2.5 times



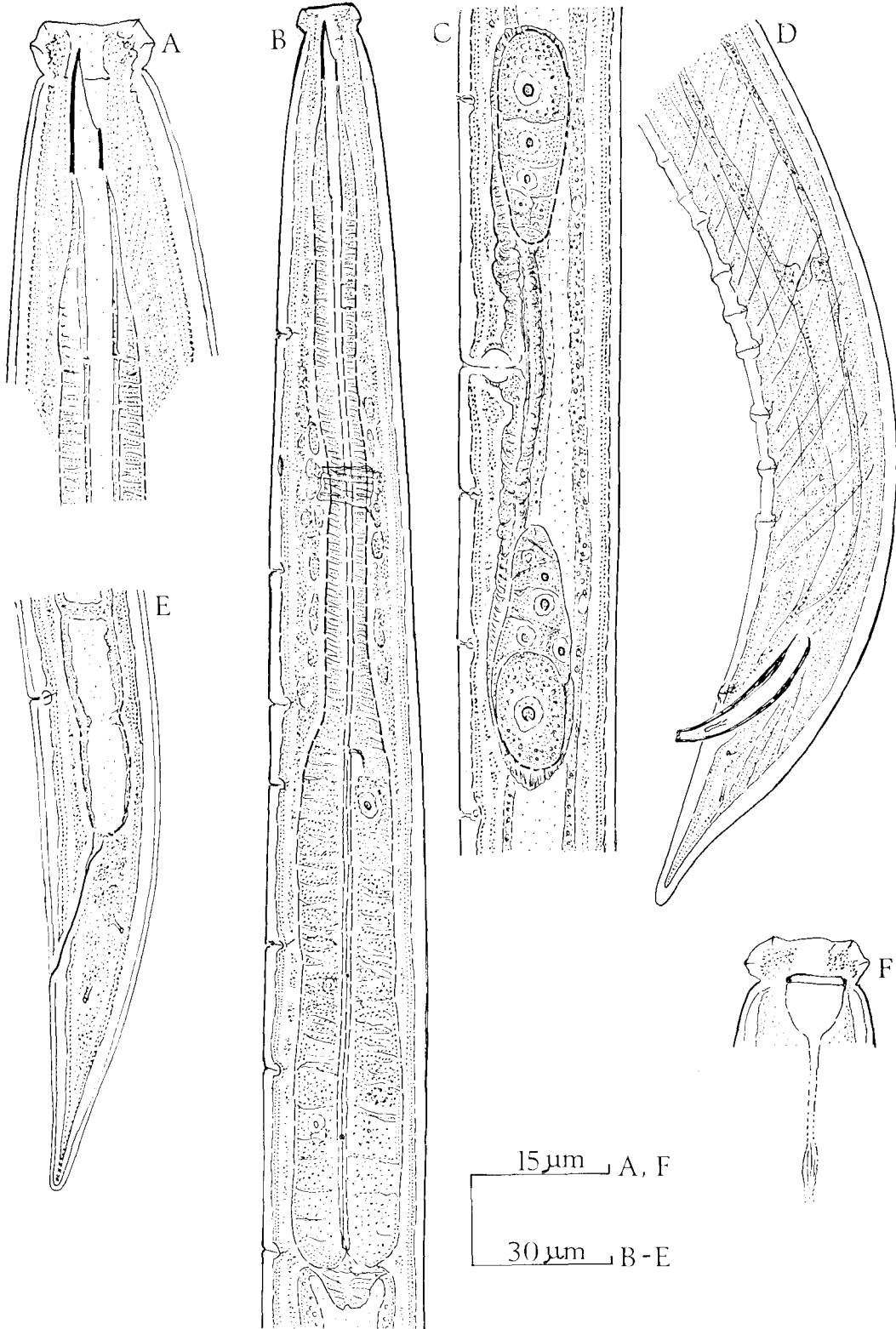


Fig. 3 - *Moshajia idiofora* gen. n., sp. n. A. Head end. B. Oesophageal region. C. Reproductive system. D and E. Tail ends. F. Amphid. D. Paratype male, remainder holotype female.

body width long. Rectum 1.5-1.7 times anal body width long. Tail subdigitate, 1.3-1.6 times anal body width long.

*Type habitat and locality:* Soil around roots of rice (*Oryza sativa* L.), Ibadan, Nigeria.

*Type specimens:* Collected in 1968. Holotype at C.I.P., St. Albans; 1 ♀ paratype each at these centres: R.E.S., Harpenden; Landbouwhogeschool, Wageningen; I.A.R.I., New Delhi; U.S.D.A., Beltsville.

*Relationship:* *Moshajia cultristyla* sp. n. differs from *M. idiofora* in having a larger number of ventral body pores, a longer odontostyle and a shorter subdigitate female tail being 1.3-1.6 times anal body width long. From *M. warriari* (Jairajpuri, 1965) comb. n. it differs in having a smaller body-size, fewer dorsal body pores, and shorter odontostyle (L = 1.7-2.3 mm; dorsal body pores 20 and odontostyle 24 µm long in *M. warriari*).

#### S U M M A R Y

*Sicorinema* gen. n. and *Moshajia* gen. n. are proposed in the family Crateronematidae. Both have aporcelaimid lip region, wide-lumened odontostyle with aperture over half its length, pore-like vulva and short conoid tails; the male, known only for *Moshajia idiofora* sp. n., has simple spicules lacking median stiffening piece. *Sicorinema* differs from *Moshajia* in having a thin, regular, annulated cuticle, indistinct body pores and monodelphic, opisthodelphic reproductive system. *Sicorinema sericatum* sp. n. (type-species), *S. colombiense* sp. n., *Moshajia idiofora* sp. n. (type-species) and *M. cultristyla* sp. n. are described and illustrated and *Moshajia warriari* (Jairajpuri, 1965) comb. n. is proposed for *Lordellonema warriari* Jairajpuri, 1965.

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Accepted for publication on 2 June 1982.