

TWO NEW SPECIES OF THE FAMILY CRICONEMATIDAE FROM SOUTH INDIA

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Abstract: Two new species, *Crossonema malabaricum* and *Neolobocriconema palaniensis*, collected from soil around the roots of a wild species of Jack at Krishnapuram (Kerala) and *Geranium* at Kodaikanal (Tamil Nadu) respectively are described.

During the survey of horticultural crops in South India, for nematode species of the superfamily Criconematoidea, two new species were found associated with a wild species of Jack and *Geranium* in Kerala and Tamil Nadu respectively and they are described below.

CROSSONEMA MALABARICUM SP. N. (FIG. 1)

Paratypes 5 ♀♀ : L = 0.28 - 0.47 mm; a = 7.7 - 10.3; b = 2.6 - 3.3; c = ?; V = 91.9 - 94.5; R = 43 - 45; Rst = 11 - 12; Roes = 15 - 17; Rv = 4; VL/VB = 0.6 - 0.9; VL/ST = 0.2 - 0.4; St % L = 19.4 - 23.9; St % Oes = 58.0 - 71.5; Stylet = 80 - 92 μ m.

Holotype Female : L = 0.51 mm; a = 8.6; c = ?; V = 95.5; R = 44; Rss = 10; Roes = 16; Rv = 3; VL/VB = 0.6; VL/St = 0.2; St % L = 19.2; St % Oes = 59.6; Stylet = 89 μ m.

Body short, plump and slightly curved. Head distinctly set off, with two annules, first annule wider (20-27 μ m) than second (16-20 μ m) and divided into four sectors; second annule narrow, collar like, anteriorly directed and with four equidistant notches. Labial disc elevated. Body annules retrose, 6-11 μ m apart and bear continuous fringe of spines, number of spines in the fringe range from 20-24 near the cephalic region to 30-40 on mid-body and decrease gradually in the tail

region. The spines of anterior region are short, flat and squarish; at mid-body comparatively long and reach upto posterior margin of the respective annule while on tail conspicuously long, roundish, frequently with bifid tips and extend beyond posterior margins of the succeeding annules. Spear well developed with basal knob 9-11 μ m across and anteriorly cupped. Oesophagus typically criconemoid. Excretory pore obscure. Ovary out-stretched, extend upto mid-region of oesophagus, oocytes arranged in single file; vulval lips conical and withdrawn from body contour. Anus obscure and tail conoid with rounded terminus.

Third stage juvenile (2 ♀♀) L = 0.21 - 0.27 mm; a = 6.5 - 7.8; b = 2.4-2.5; c = ?; Stylet = 55 - 71 μ m. Body spindle shaped and plump. Head blunt, truncate, set off, of two annules, both non-retrose and rounded. First annule wider than second. Body annules with 8-10 rows of spines.

Fourth stage juvenile (1 ♂) : Body uniformly elongate, head similar to third stage female juveniles; tail gradually tapers and round at tip. Body annules with six rows of spines.

Holotype : Female collected on 22-10-83 is deposited in the nematode collections of the Department of Nematology, Tamil Nadu Agricultural University, Coimbatore.

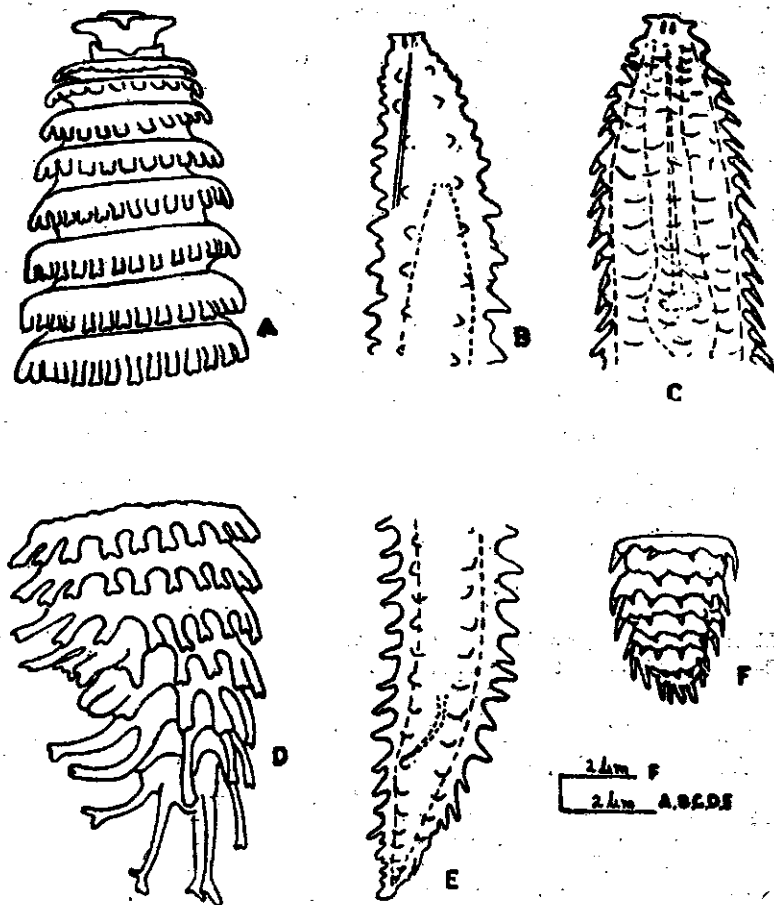


Fig. 1. *Crossonema malabaricum* n. sp. Female. A—Anterior part of the body; D—Tail, Male juvenile, B & E—Anterior parts of the moulting IV stage, Female juvenile, C—Anterior part of the body; F—Tail.

Paratypes: 4 ♀♀ deposited in the nematode collections of the Department of Nematology, Tamil Nadu Agricultural University, Coimbatore and one slide containing one female in the National nematode collection, Indian Agricultural Research Institute, New Delhi, India.

Type host: Wild Jack, *Artocarpus hirsutus* Lam.

Type Locality: Krishnapuram, Quilon district, Kerala State, India.

Diagnosis: This species is closely related to *C. taylora* (Jairajpuri, 1964) Mehta & Raskj, 1971 and *C. taylatum* Khan, Chawla & Saha, 1976. It is distinguished from the former by the anteriorly directed second annule of the head region, less number of annules (53–58 in *taylora* and 43–45 in *malabaricum*) and by the shape and formation of spines on the body and tail. It differs from *taylatum* by the shape and formation of spines on the body and tail annules.

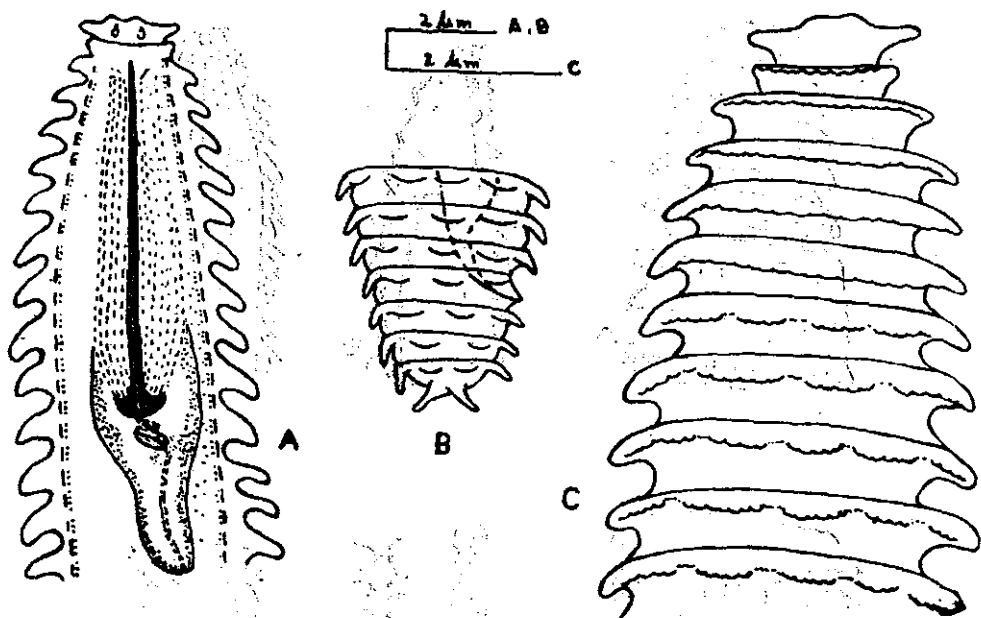


Fig. 2. *Neolobocriconema palaniensis* n. sp. Female. A—Anterior end of body; B—Tail, C—Surface view of anterior part of body.

NEOLOBOCRICONEMA PALANIENSIS SP. N. (FIG. 2)

Paratypes (2 ♀♀) : L = 0.35 – 0.42 mm; a = 8.0 – 8.7; b = 2.8 – 3.1; c = ?; V = 92.6 – 92.8; R = 48 – 50; Rst = 10 – 13; Roes = 15 – 17; Rv = 5 – 6; VL/VB = 0.7 – 0.9; VL/St = 0.3 – 0.4; St% L = 19.6 – 21.3; St% Oes = 59.5 – 61.5; Stylet = 75 – 85 μm.

Holotype Female : L = 0.41 mm; a = 8.9; b = 3.2; c = ?; V = 92.5; R = 51; Rst = 11; Roes = 16; Rex = 19; Rv = 4; VL/VB = 1.0; VL/St = 0.4; St% L = 19.8; St% Oes = 63.8; Stylet = 85 μm.

Body slightly arcuate with thick cuticle. Head with two annules, set off, directed outward and forward. First annule wider (20 μm) than second (18 μm). Spear with well developed basal knobs (9–11 μm across). Oesophagus criconemoid. Body annules retrose and posteri-

or margins serrated and form into lobes from 6th or 7th annule, the number of lobes vary from 8 to 12. Vulval lips conical and located on 4th to 7th annule from tail end. Ovary outstretched, extend upto oesophagus and oocytes in single row. Anus not discernible. Tail broadly conoid.

Holotype : Female collected on 28th March, 1984 deposited in the nematode collections of the Department of Nematology, Tamil Nadu Agricultural University, Coimbatore.

Paratypes : Two females, mounted singly on two slides, with same data as holotype are also deposited in the nematode collections of the Department of Nematology, Tamil Nadu Agricultural University, Coimbatore.

Type host : *Geranium* sp.

Type Locality : Horticultural Research Station of the Tamil Nadu Agricultural

University, Kodaikanal of Palani Hills (4000 feet), Madurai district, Tamil Nadu.

Diagnosis: *N. palaniensis* is closely related to *N. serratum* (Khan & Siddiqi, 1963) Mehta & Raski, 1971 but differs from it by the presence of two head annules, greater number of body annules (36-38 annules in *serratum* and 48-51 in *palaniensis*) and being smaller in size (body length 0.5-0.6 mm in *serratum* and 0.3-0.4 mm in *palaniensis*).

The author is thankful to the ICAR for the financial assistance provided for carrying out the studies under Emeritus Scientist Scheme and to Dr. Koshy, Nematologist, CPCRI, Kayankulam, Kerala; Dr. P. Balakrishnan, Professor of Horticulture, Horticulture Research Station of the Tamil Nadu Agricultural University, Kodaikanal, Madurai district and Dr. S. Jayaraj, Director, Centre for

Plant Protection Studies and Dr. Sivagami Vadivelu, Head of the Department of Nematology, Tamil Nadu Agricultural University, Coimbatore for providing facilities.

REFERENCES

- JAIRAJPURI, M.S. (1964). *Criconema taylori* n. sp. (Nematoda: Criconematidae) from South India. *Nematologica* 10: 108-110.
- KHAN, E., & SIDDIQI, M.R. (1963). *Criconema serratum* n. sp. (Nematoda: Criconematidae) a parasite of peach trees in Almora, North India. *Curr. Sci.* 32: 414-415.
- KHAN, E., CHAWLA, M.L. & SAHA, M. (1976). Criconematoidea (Nematoda: Tylenchida) from India with descriptions of nine new species, two new genera and a family. *Indian J. Nematol.* 5: 70-100.
- MEHTA, U.K. & RASKI, D.J. (1971). Revision of the genus *Criconema* Hofmann and Menzel, 1914 and other related genera (Criconematidae: Nematoda). *Indian J. Nematol.* 1: 145-198.