

Description of an Indian population of *Trophurus longimarginatus* Roman, 1962 (= *T. impar* Ganguly & Khan, 1983, n. syn.) (Nematoda: Belonolaimidae)

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Trophurus longimarginatus Roman, 1962 was described from soil around roots of West Indian mahogany (*Swietenia mahogany* Jacq.) in Puerto Rico. A large *Trophurus* sp. population is commonly found 20-60 cm deep in soil around roots of pigeon pea at the research farm of ICRISAT, Patancheru, Andhra Pradesh, India. A sample from this population was collected and is described here in detail. From this description, we believe that *Trophurus impar* Ganguly & Khan, 1983 is a junior synonym of *T. longimarginatus*.

Specimens were heat-killed and fixed in 4% formalin, dehydrated, and mounted in anhydrous glycerine. Measurements were made with an ocular micrometer.

***Trophurus longimarginatus* Roman, 1962
= *T. impar* Ganguly & Khan, 1983, n. syn.
(Fig. 1)**

MEASUREMENTS

See Table 1.

DESCRIPTION

Females: Body straight to curved ventrad upon fixation, anterior end distinctly narrower. Cuticle finely striated, forming annuli less than 1.0 μm wide at mid-body. Lateral field consisting of three bands, starting near metacorporeal region, occupying about 1/3 of body width at midbody, terminating slightly anterior to tail tip. Lip region continuous, conoid, truncated, indistinctly striated, 5-6 μm wide at base, 4 μm high. Labial sclerotization moderately developed, outer margins extending six or seven annules posteriorly. Cephalids present, anterior pair 4-5 μm posterior to lip region, posterior pair at level of stylet knobs. Stylet slender, delicate; cone attenuated, about 40-45% of stylet length; knobs rounded, slightly posteriorly directed, 3-4 μm wide. DGO 4-5 μm . Oesophagus: procorpus slender, 69-77 μm long; metacarpus fusiform, 12-14 μm long, with 3-4 μm long valve plates, located slightly posterior to middle of oesophagus; isthmus slender, 34-42 μm long; basal bulb pyriform, 20-25 μm long, 8-9 μm wide. Excretory pore slightly

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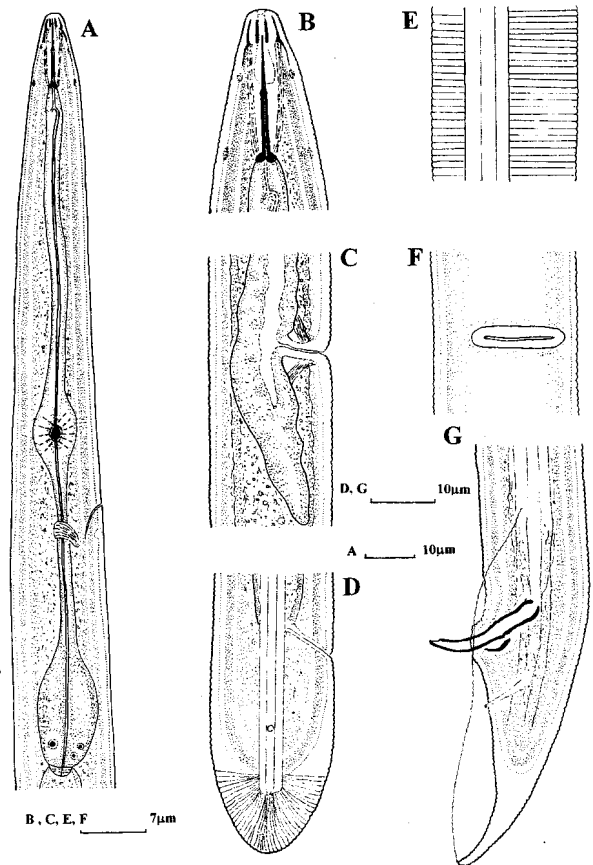


Fig. 1. *Trophurus longimarginatus* Roman, 1962. A: Oesophageal region; B: Anterior end; C: Vulval region showing post vulval sac; D: Female tail end; E: Lateral field; F: Ventral view of vulva; G: Male tail.

anterior to nerve ring. Hemizonid 4-5 μm posterior to excretory pore. Hemizonion not seen. Reproductive system pseudomonoprodelfhic, gonad outstretched. Oocytes arranged in single row except at tip where forming double row. Post-uterine sac about 1.0-1.5 vulval body diameter long. Vulval opening a transverse slit, one third of vulval body diameter long. Vagina slightly anteriorly directed. Spermatheca oval, 18-23 μm long, filled with sperm. Intestine slightly overlapping rectum. Tail subcylindrical, tip striated. Terminal cuticle very thick. Phasmids pore-like on tail, at 12-15 μm from anus.

Table 1. Measurements of *Trophurus longimarginatus* Roman, 1962 and *T. impar* Ganguly & Khan, 1983 (all measurements in μm).

	<i>Trophurus longimarginatus</i>				<i>Trophurus impar</i>
	ICRISAT population		Original description		Original description
	Females	Males	Females	Males	Females
n	20	10	11	6	5
L	995±86.6 (880-1150)	949±50.9 (870-1033)	844-1052	730-835	800-930
a	55.39±3.3 (50.4-61.8)	58.0±1.8 (54.3-60.7)	40.9	45.6-53.8	52-58
b	6.2±0.5 (6.0-7.5)	6.3±0.2 (5.8-6.5)	6.7-7.9	6.3-7.1	6.1-6.8
c	35.3±3.3 (31.0-41.8)	28.8±0.7 (28.3-29.7)	26.0-33.0	22.1-25.1	30-40
c'	1.9±0.2 (1.6-2.1)	2.1±0.1 (2.0-2.4)	[2.0]	[2.5]	1.8-2.2
V	56.7±1.9 (54.0-60.6)	-	54-61	-	54-60
Stylet	13.0±0.7 (12.5-14.0)	13.1±0.60 (12.5-14.0)	14-16	12-14	12-14
Oesophagus	145.5±4.3 (140-153)	150.6±5.7 (143-160)	-	-	-
Excretory pore	98.3±3.8 (92-102)	96.7±4.9 (90-102)	-	-	87
Tail	28.3±2.0 (26-32)	32.9±1.8 (30.0-36.5)	-	-	[31]
* h	10.2±0.4 (9-11)	12±1.0 (10-15)	-	-	10
* h%	30-35	35-50	-	-	-
Spicules	-	17.2±0.6 (15-18)	-	11-15	-
Gubernaculum	-	5.0±0.7 (4.5-6.0)	-	3-6	-
Bursa	-	45.0±2.8 (40-48)	-	-	-

[] calculated from the figures; * h, h% = length of hyaline terminal part of tail in μm , and as a percentage of tail length.

Males: Similar to females. Spicules simple, arcuate. Gubernaculum trough-shaped; bursa simple, finely annulated, reaching tail extremity.

HABITAT AND LOCALITY

Soil around the roots of pigeon pea, *Cajanus cajan* (L) Mill., in field no. BW8 at the research farm of ICRISAT, Patancheru, Andhra Pradesh, India.

REMARKS

The present population is identical both in measurements and morphology to *Trophurus longimarginatus*, except in having higher 'a' value in females and slightly longer body and higher 'c' value in males (Roman, 1962). It closely resembles *T. impar* Ganguly & Khan, 1983, both in measurements and morphology, with the exception of presence of males, hemispherical cardia, and striated tail tip (males not found, cardia bifurcated, and tail tip smooth in *T. impar*). Ganguly and Khan (1983) differentiated *T. impar* based mainly on two characters (absence of males and bifurcated cardia) that were observed in five specimens. The illustrations of *T. impar* clearly show sper-

matheca with sperms, which means that the absence of males is not a diagnostic character for *T. impar*. The bifurcated cardia is not a typical character in this group. It has not been reported in any other species within the superfamily Tylenchoidea. Therefore, we believe this unusual character to be an artefact. In our specimens, tail tip striations are so fine that tail tip sometimes seemed to be smooth, but careful observation of twenty specimens confirmed that striations are in fact present. In our opinion, the description of *T. impar* is based on a too small number (five) of specimens to confirm the striations on tail tip. Consequently, we propose *T. impar* Ganguly & Khan, 1983 as a junior synonym of *T. longimarginatus* Roman, 1962.

References

- GANGULY, S & KHAN, E. (1983). *Trophurus impar* sp. n. and *Scutellonema eclipsi* sp. n. (Nematoda: Tylenchida). *Indian J. Nematol.*, 13: 230-234.
- ROMAN, J. (1962). *Trophurus longimarginatus* n. sp. (Tylenchida: Nematoda) from Puerto Rico. *J. Agric. Univ. Puerto Rico*, 46: 269-271.