

**TWO PLANT PARASITIC NEMATODES OF THE
GENUS SEINURA FUCHS, 1931 (NEMATODA :
APHELENCHOIDIDAE) FROM LUCKNOW**

By

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(With 4 Text-figures)

INTRODUCTION

Two species of the genus *Seinura* Fuchs were obtained from the two different hosts *Carica papaya* and *Solanum melongena*, which on detailed study, were found to be new to Science. The roots of both these plants were also infected heavily with the genera *Aphelenchus* Bastian and *Aphelenchoides* Fischer.

***Seinura tandoni* sp. n.**

(Text-fig. 1)

Measurements of Females (N=20) : L=0.74mm. (0.62—0.86 mm.)

a=24 (20.6—27); b=9.5 (8.2—10.6);

c=9.8 (8.8—11); V%=74% (71%—80%);

Stylet=17 μ (16 μ —18 μ); Hemizonid-O. 1mm. (0.08-0.12 mm.)

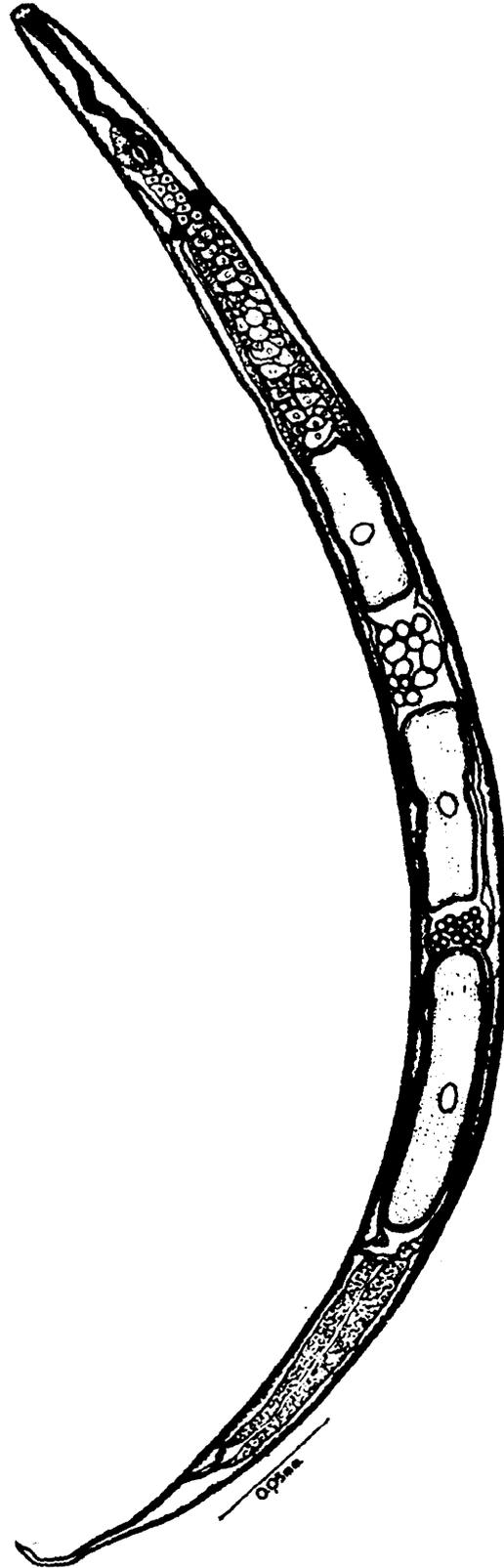
Female (Holotype) : L=0.64 mm.; a=20.06; b=8.9;

c=10.2; V%=73; Stylet=17 μ ; Hemizonid=0.09 mm.

(from the anterior end); Excretory pore=0.068mm.

Body cylindrical, arcuate and very finely striated. Lip region distinctly set off from the body by a constriction. Annules in the lip region not visible. Stylet strongly built and knobless. Oesophageal bulb generally oval with a constriction along its length and measures 18 μ —20 μ in length and 12-15 μ in width; shape of the oesophageal bulb variable. Crescentic valve located posteriorly. Storage chamber present at both the ends of the oesophageal bulb. Oesophageal glands 85 μ -160 μ long. Excretory pore present anterior to the nerve ring at the level of the posterior end of the median oesophageal bulb. Hemizonid at the level of the nerve ring in almost all the specimens. Its distance from the excretory pore ranges 25 μ to 34 μ . Tail 0.076mm. (0.063-0.98mm.) or six to seven body widths in length, tapering towards its tip but not forming a filiform process, tail tip may be curved dorsally or ventrally.

Ovary single, anterior reaches up to the level of the oesophageal bulb separated from the uterus by a constriction. Oöcytes in one, two or more rows. One or two eggs present in uterus measuring 0.091—0.129 mm. \times 0.018—0.02mm. Post-vulvar uterine sac absent. Vulva transverse without prominent lips, placed at about two third of the body length from the anterior end.



Text-fig. 1. *Seinura tandoni* sp. n., Female showing general anatomy.

Holotype: ♀ (Slide St/1); Uttar Pradesh; Lucknow (Govt. Agriculture Farm, Aliganj); decaying roots of papaya (*Carica papaya*); 16.1.1971; S. P. Singh Coll.; in R. S. Tandon Coll. at Zoology Department, Lucknow University, Lucknow.

Paratypes: 19 ♀ ♀ (St/2—St/19) India; Uttar Pradesh; Lucknow (Govt. Agriculture Farm, Aliganj); decaying roots of papaya (*Carica papaya*) 16.1.1971; S. P. Singh Coll.; in Dr. R. S. Tandon Coll. at Zoology Department, Lucknow University, Lucknow.

Relationship and differential diagnosis.—According to the key given by Hechler and Taylor, 1965 for the genus *Seinura* the new species resembles *Seinura winchesi* (Goodey, T, 1927) J. B. Goodey, 1960 in possessing knobless stylet and in the absence of post-vulvar uterine sac, but differs in the values of a, b and c of the deManiam formula, length of the stylet, variable shape of the median oesophageal bulb, posterior position of the crescentic valve and extension of ovary.

Seinura tandoni n. sp. comes nearer to *Seinura oxura* (Paesler, 1957) J. B. Goodey, 1960 in its stylet, offset lip region, posteriorly placed crescentic valve, arrangement of oogonia, presence of hemizonid posterior to the excretory pore, in having a shorter stylet, in the absence of lateral line incisures, in the size of eggs and shape and length of tail.

It also resembles *Seinura oostenbrinki* Hussain & Khan, 1967 in having a knobless spear, distinctly set off head, b and c values presence of hemizonid and absence of lateral line incisures but it differs from *Seinura oostenbrinki* in size of the body, shape of the spear, absence of the spear guide, shape of the median oesophageal bulb and its valve, position of hemizonid and excretory pore, length of the tail, absence of post-vulvar uterine sac and arrangement of oöcytes.

The species is named after Dr. R. S. Tandon, Department of Zoology, University of Lucknow, Lucknow, India.

Seinura kherai sp. n.

(Text-figs. 2—4)

Measurements of Females (N—12): L=0.768mm. (0.62—0.97mm.

a=28 (22—36); b=9 (8—11); c=16 (11—20);

V%=76%; (71=82%); Stylet=15 μ . (12 μ —18 μ)

Female (Holotype) : L=0.97mm.; a=34; b=11; c=18

V%—71% Stylet=18 μ ; Excretory pore=0.094 mm.

Body moderately slender, bow shaped tapering at both the extremities **Head** set off from the body with six prominent lips. Cuticle finely striated with eight to ten striations in 0.01mm., stylet stout knobless 18 μ long with oblique orifice at anterior end. Lateral fields with three incisures.

Hemizonid absent. Excretory pore a little behind the median oesophageal bulb. Tail conoid and shorter than vulva anus distance, measuring 0.047 mm. (0.03—0.058 mm.). Shape and the length of the tail variable.

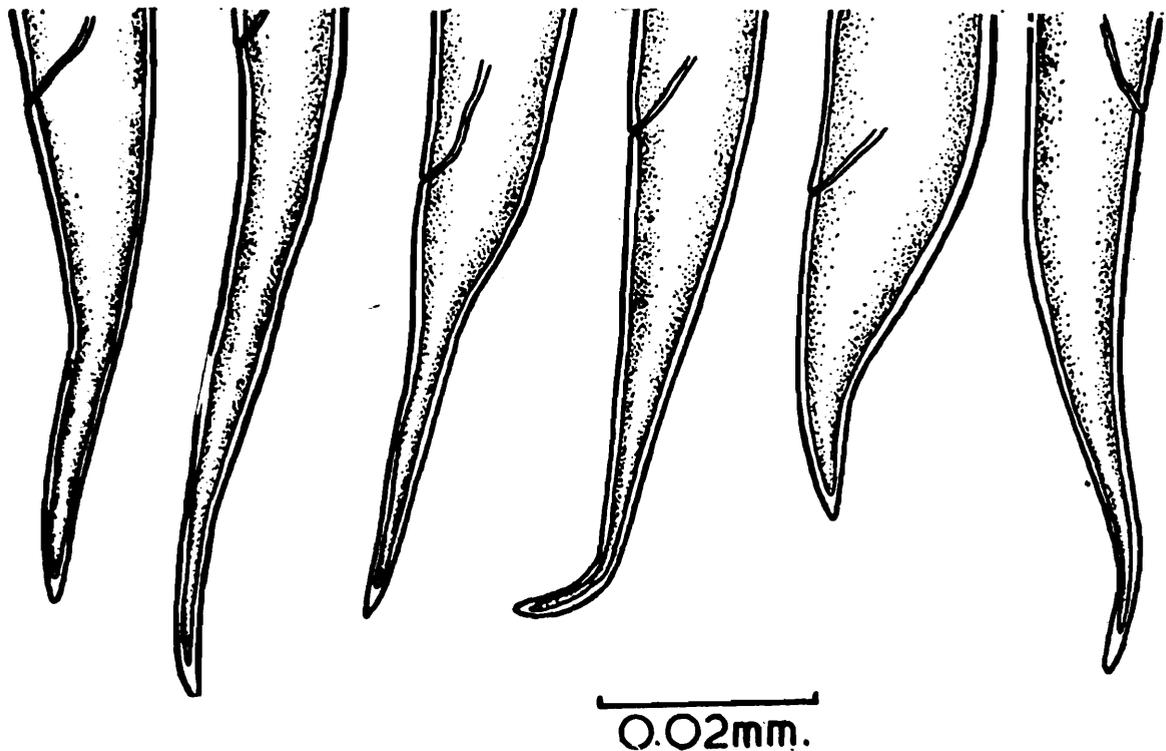


Text-fig. 2. *Seinura kherai* sp. n., Female showing general morphology.

Procorpus narrow, median oesophageal bulb large pear shaped measuring $23 \times 17 \mu$ [21μ (17μ — 25μ) \times 13μ (10μ — 17μ)]. Crescentic valve located posteriorly. Nearly whole of the anterior and a little

posterior portion of the bulb alveolated and seems to function as reservoir for the glandular products. Oesophageal glands 130—140 μ long and overlaps intestine dorsally. Narrow oesophageal duct suddenly widens soon after it comes out of the median oesophageal bulb and again it narrows. No oesophago-intestinal valve was observed. Intestine tessellated, its lumen is wide just posterior to the median oesophageal bulb, narrowing rapidly behind the nerve ring widening again just anterior to the short rectum.

Ovary single, outstretched and its anterior extension a little anterior to the end of the oesophageal gland. Oocytes arranged in a single or double file. Presence of sperm, in the uteri of some specimens, shows that the region of the spermatheca is formed but not clearly demarcated. Vulva transverse, vagina perpendicular to the body axis or directed anteriorly. Post-vulvar uterine sac absent.

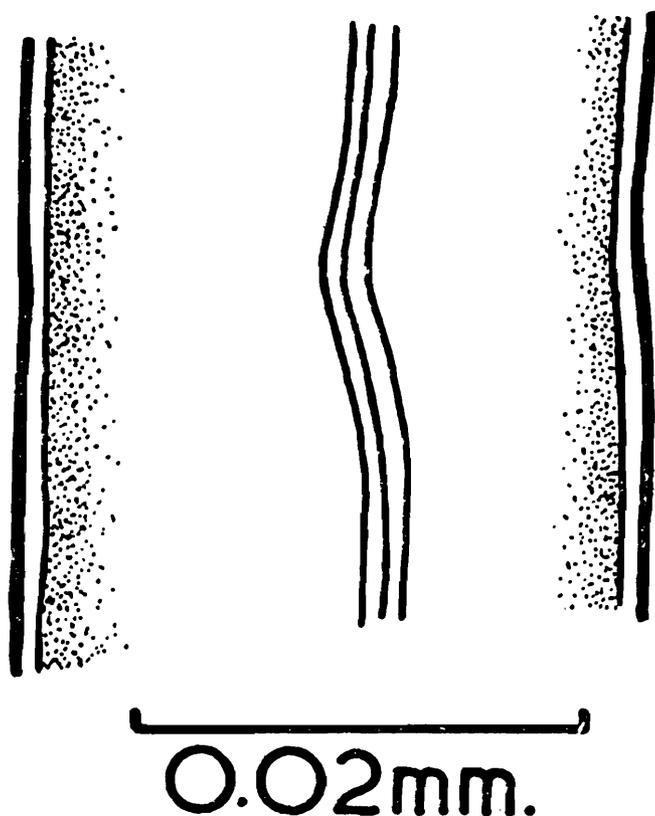


Text-fig. 3. *Seinura kherai* sp. n., Posterior portions of females showing variations in shape of the tails.

Holotype: ♀ (Slide Sk/I); India; Uttar Pradesh; Lucknow; (Kitchen Garden of Dr. R. S. Tandon, Lucknow University) roots of brinjal (*Solanum melongena*); 4.ii.1971; S. P. Singh Coll.; in Dr. R. S. Tandon Coll. at Zoology Department, Lucknow University, Lucknow.

Paratypes: 12 ♀♀ (Slides Sk/2—Sk/12); India; Uttar Pradesh; Lucknow (Kitchen Garden of Dr. R. S. Tandon, Lucknow University); roots of brinjal (*Solanum melongena*); 4.ii.1971; S. P. Singh Coll.; in Dr. R. S. Tandon Coll. at Zoology Department Lucknow University, Lucknow.

Relationship and differential diagnosis.—The new species resembles *Seinura oxura* (Paesler, 1957) J. B. Goodey, 1960 in the absence of post-vulvar uterine sac, three incisures in the lateral fields, anterior extension of the ovary and arrangement of oocytes in ovary at the anterior end. It however differs from *S. oxura* in its larger size, different dimensions of the body, length and shape of the tail and stylet, absence of hemizonid, larger size of the eggs and absence of males.



Text-fig. 4. *Seinura kherai* sp. n., Lateral line incisures.

It comes nearer to *Seinura pinni* Messey, 1966 in having a knobless spear, in the shape of the oesophageal bulb, in the presence of glandular part anteriorly and posteriorly in the median oesophageal bulb; in having an outstretched ovary with its anterior portion overlapping the distal end of glands but differs in the dimensions of the body, size of the stylet, in having only three incisures in the lateral fields, absence of post-vulvar uterine sac and shape of the tail.

Seinura kherai n. sp. also comes close to *S. oostenbrinki* Hussain & Khan, 1967 in its shape of the body, values of b and V in deManian formula distinctly offset head, knobless spear and glandular intestine but it differs in the shape and size of the stylet, values of a and c, shape of the oesophageal bulb and its valve, position of the excretory pore and absence of post-vulvar uterine sac.

The species is named after Dr. S. Khera, Deputy Director, Zoological Survey of India, Calcutta.

SUMMARY

Two new plant nematodes, *Seinura tandoni* from the roots of *Carica papaya* and *Seinura kherai* from the roots of *Solanum melongena* are described. Descriptions of both species are based on females only.

ACKNOWLEDGEMENT

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REFERENCE

- HECHLER, H. C. & TAYLOR, D. P., 1965. Taxonomy of the genus *Seinura* (Nematoda: Aphelenchoididae) with description of *S. celeris* n. sp. and *S. steineri* n. sp. *Proc. Helminthol. Soc. Wash.*, 32 (2) : 205—219.