

Redescription of *Seinura demani* (T. Goodey, 1928) J. B. Goodey, 1960 (Nematoda : Seinuridae) and designation of a neotype

Pieter A. A. LOOF* and David J. HOOPER**

* Department of Nematology, Agricultural University, P.O. Box 8123, 6700 ES Wageningen, Netherlands;

** AFRC Institute of Arable Crops Research, Rothamsted Experimental Station, Harpenden, Herts, AL5 2JQ, England.

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Summary – *Seinura demani* is redescribed from a population originating from Humberside, England. A neotype is designated. The species is characterized by a slightly asymmetrical lip region; males are much smaller than females and have often a reduced pharynx.

Résumé – *Redescription de Seinura demani* (T. Goodey, 1928) J. B. Goodey, 1960 (Nematoda : Seinuridae) et désignation d'un néotype – *Seinura demani* est redécrit à partir d'une population provenant de Humberside, en Angleterre. Un néotype est désigné. Cette espèce est caractérisée par la région labiale légèrement asymétrique, la taille des mâles nettement plus faible que celle des femelles et un pharynx fréquemment réduit.

Key-words : Nematata, *Seinura*, redescription.

In 1928 T. Goodey described a new species, *Aphelenchus demani*, from seven females and one male, found on grass blades from a turf in England. In 1933 he transferred it to the genus *Aphelenchoides* Fischer, 1894; in 1960 J. B. Goodey transferred it to the genus *Seinura* Fuchs, 1931, where it has remained. In his description T. Goodey (1928) made use of notes and measurements sent to him by J. G. de Man from Holland, but he did not see these specimens himself.

Later the species was mentioned and described by Goffart (1930), W. Schneider (1939), Filipjev and Schuurmans Stekhoven (1941), and Meyl (1961). However, all these authors copied the original description; apparently they did not have fresh material. Only Rahm (1938) described new specimens from Hainan, but his description contains data which make it dubious as to whether his specimens belong to *S. demani*.

Goodey's type material does not exist any more. One of us (DJH) found and cultured a population from turf from the county of Humberside, sent by the Agricultural Development and Advisory Service of the Ministry of Agriculture at Leeds, Yorkshire. Since the systematics of the genus *Seinura* contains several uncertainties, we give a redescription of the species and designate a neotype.

Material and methods

A few specimens of *S. demani* from turf were added to an agar plate culture of *Aphelenchus avenae* on *Botrytis cinerea*. Some five weeks later virtually all the *Aphelenchus* had disappeared, presumably killed by the *Seinura* of which there were several hundred on the plate. Specimens for light microscopy were killed and fixed by add-

ing hot FP 4:1 plus 2% glycerol (plus a trace of picric acid for one batch) to them in a glass cavity block which was then left loosely covered for several weeks at room temperature until the fixative had evaporated leaving the specimens in glycerol in which they were stored and eventually mounted for permanent slides. Specimens for examination with SEM were fixed as above for a few days, then transferred to 1% OsO₄ in phosphate buffer for 1 h, then via graded ethanol solutions to absolute ethanol, critical-point dried using CO₂, put onto SEM stubs and gold coated. They were examined in an Hitachi S-450 SEM at 20 kV. Some later SEM examinations were made on specimens that had been processed as above in a Jeol JSM 35 C at the TFDL, Wageningen.

Seinura demani (T. Goodey, 1928)

J. B. Goodey, 1960

(Figs 1-3)

MEASUREMENTS

See Tables 1, 2.

Neotype female : L = 0.71 mm; a = 34; b' = 10.9; b = 4.4; c = 6.7; c' = 8.0; V = 71; stylet = 16 µm; distance ant. end to post. margin of pharyngeal bulb = 65 µm; pharyngeal gland overlap = 95 µm; pharynx total length = 160 µm; tail = 106 µm.

DESCRIPTION

Adults : Body slender, almost straight in females, strongly curved ventrad posteriorly in males. Cuticle 1 µm thick, with almost imperceptible transverse striae which are about 1 µm apart. Lateral field narrow, some

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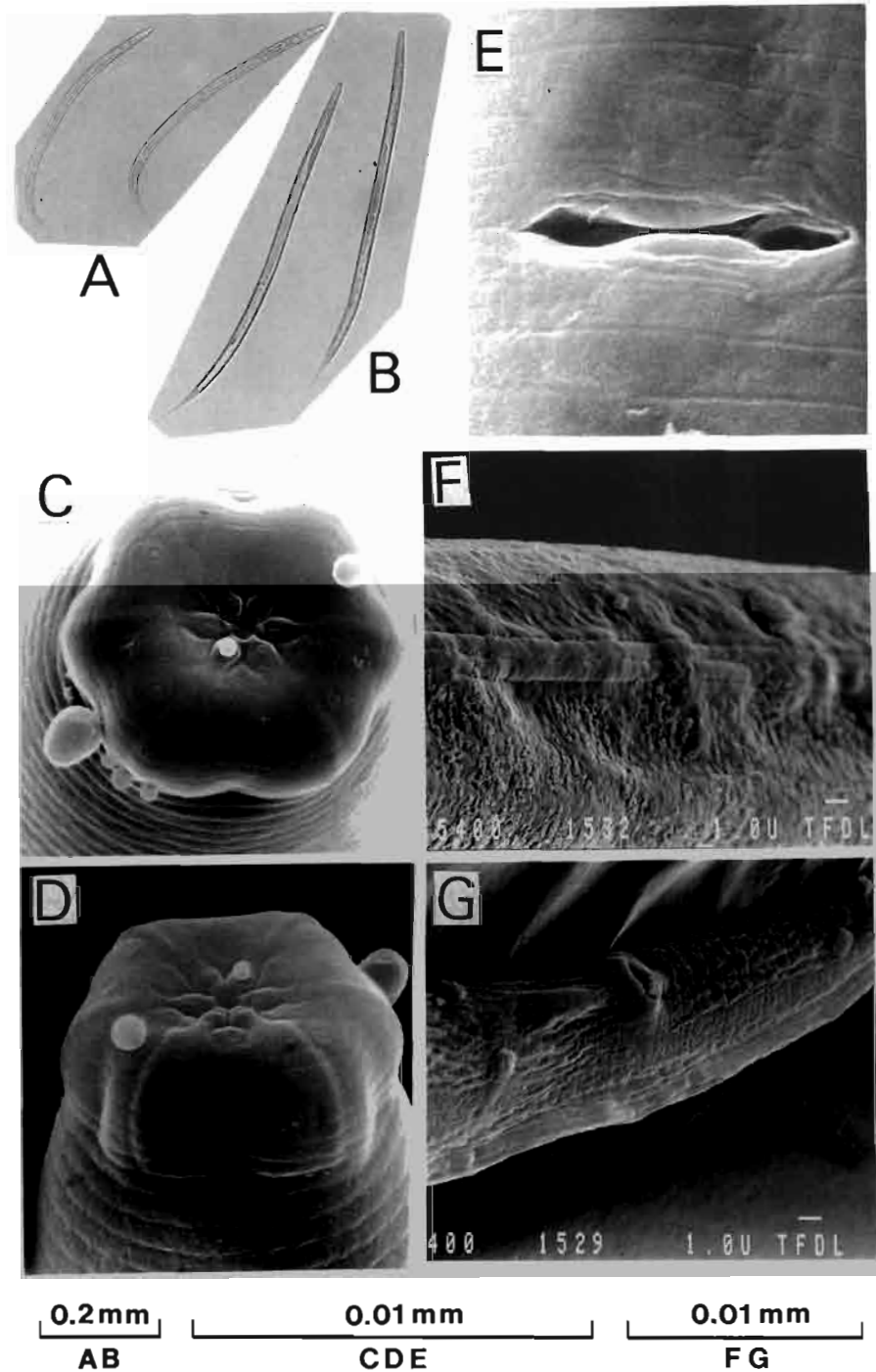


Fig. 1. *Seinura demani*. A : Body attitude of males; B : Same of females – C-G SEM micrographs : C, D : Head end (end-on and oblique); E : Ventral view of vulva; F : Lateral field; G : Male tail showing papillae and lateral field (C, D, E were made with a Hitachi S-450 at Rothamsted, F and G on a Jeol JSM 35 C at the TFDL, Wageningen).

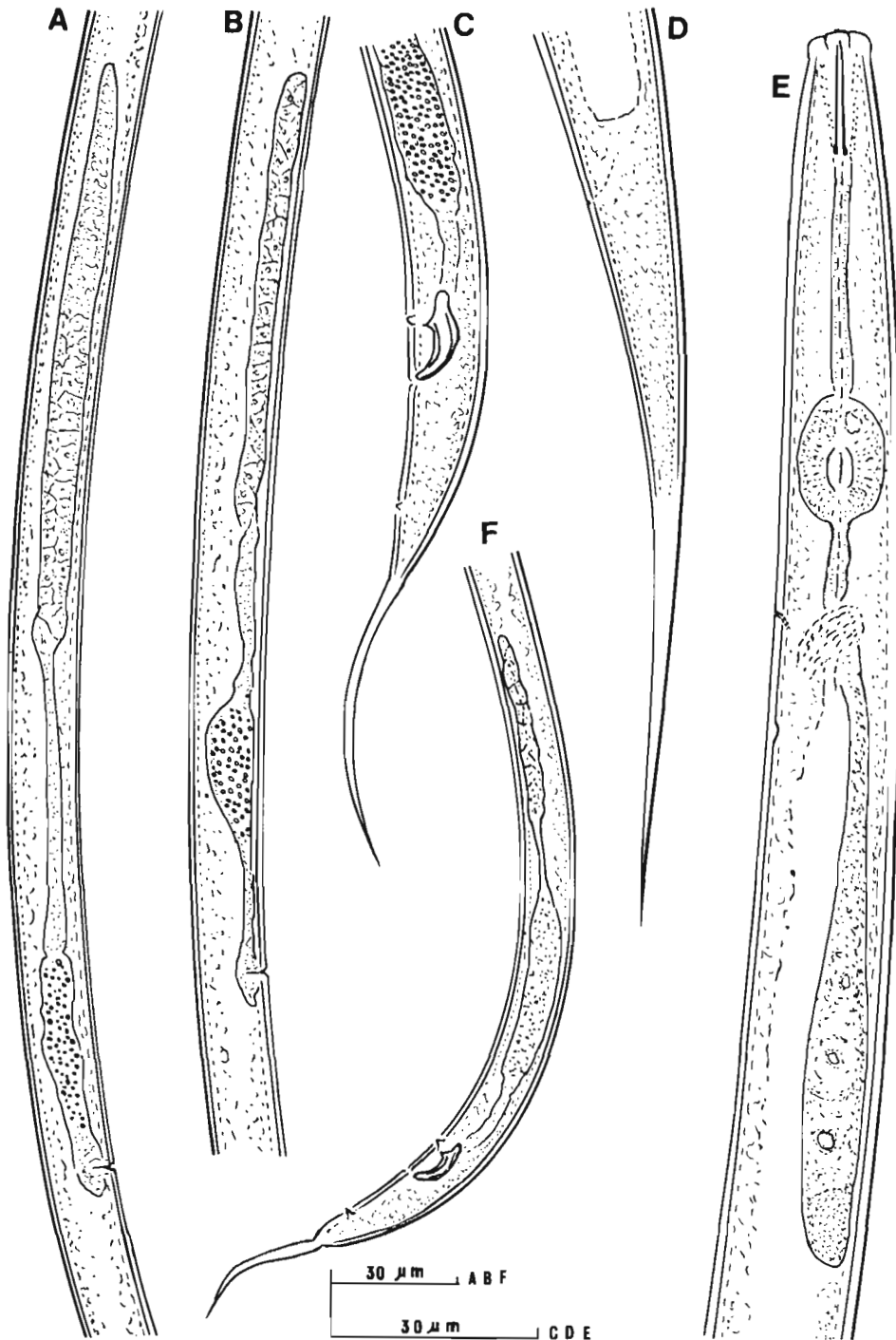


Fig. 2. *Seimura demani*. A, B : Reproductive tract of female showing location of sperm; C : Posterior end of male; D : Female tail; E : Female, pharyngeal region; F : Reproductive tract of male with well-developed testis.

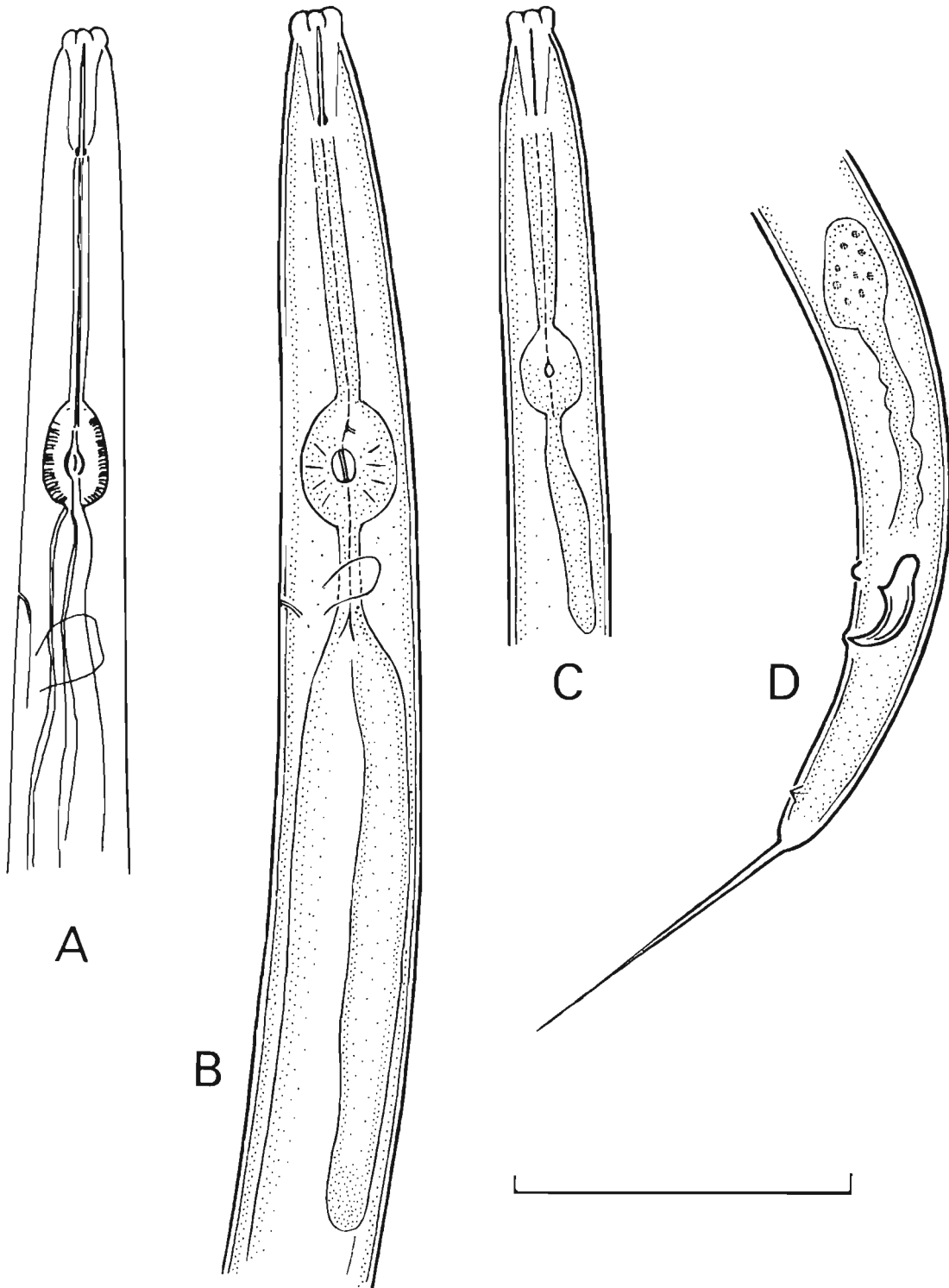


Fig. 3. *Seinura demani*. A : Male, anterior end of body showing slight asymmetry of the lip region (traced from an unpublished pencil drawing by T. Goodey); B : Female neck region; C : Male neck region; D : Male, posterior end showing straight distal part of tail. (Bar = 50 μ m).

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NEW TYPE LOCALITY

Turf in a field just inside the western border of Humberside between Blackfoss Beck and the road from Elvington to Newton upon Derwent, just north of the road from Elvington to Barmby Moor; National Grid Ref. SE 723476.

Though Goodey's original specimens probably came from somewhere in the St. Albans area, this is not certain and since the type locality was given as "England" without further qualification, we think it justified to select a neotype from the Humberside population, so that Humberside is the new type locality.

DIAGNOSIS AND RELATIONSHIPS

S. demani differs from most other species in the genus by absence of a posterior uterine sac. It differs from the remaining species as follows :

- *S. diversa* (Paesler, 1957) : this species has a relatively shorter tail ($c = 8.5-11$ in females, $13-15$ in males) and consequently the vulva is more posterior ($75-78$ vs $68-73$).
- *S. oliveirae* (Christie, 1939) : in this species the male tail tapers uniformly and the excretory pore is behind the nerve ring.
- *S. oostenbrinki* Husain & Khan, 1967 : the female tail in this species is abnormal, *Mesodorylaimus*-like; a very short posterior uterine sac is present, one-third to one-half body diameter long. Males were not found with 31 females studied.
- *S. oxura* (Paesler, 1957) : has a more posterior vulva ($79-80$ vs $68-73$); the tail is short (c in females = $13-15$) and not filiform.
- *S. paraoxyura* Mavlyanov, 1976 : vulva position and index "c" as in *S. oxura*.
- *S. propora* Siddiqi, Husain & Khan, 1967 : vulva position and index "c" as in the two preceding species.
- *S. winchesi* (Goodey, 1927) : stylet knobs absent; valves in centre of median bulb; the violin shape of the bulb is probably an artefact. *S. winchesi* differs from *S. demani* by its longer stylet ($24-27 \mu\text{m}$) and lack of pre-cloacal male papillae.

S. demani resembles most *S. celeris* Hechler & Taylor, 1965 : the tail in this species is slightly shorter, the basal knobs of the stylet are smaller and the median bulb might be slightly more oblong. Also very similar is *S. aurangabadensis* Suryawanshi, 1971, which appears to differ only by longer stylet ($19-20.5 \mu\text{m}$) without basal knobs, and by lower values of a ($26-30$ vs $30-38$) and b' ($3.0-3.5$ vs $3.6-5.2$). Suryawanshi (1971) did not give

values for "c" evidently because the anus was undetectable.

The strong size difference between males and females has been reported for some other *Seinura* species too : *S. celeris*; *S. chertkovi* Dmitrenko, 1966; *S. diversa*; *S. elmirraensis* (van der Linde, 1938); *S. filicaudata* (Christie, 1939); *S. longicaudata* (Cobb, 1893); *S. mali* Fuchs, 1931; *S. oliveirae* and *S. winchesi*.

GEOGRAPHICAL DISTRIBUTION

Goodey (1928) mentioned the species from Holland and England. Kozłowska (1967) and Domurat (1970) reported it from Poland; the latter author found it in soil of barley fields and calls it a quite common soil inhabiting species in Europe. It has also been reported from Bulgaria (Stoyanov, 1961), Czechoslovakia (Saly, 1971) and Hungary (Andrássy, 1973). Baranovskaya (1981) lists records of *S. demani* from Russia, Azerbaijan, Georgia, Lithuania, Estonia, Moldavia, Kazakhstan and Uzbekistan. Nguyen Chung Tu (1982) recorded it from Vietnam. Wood (1975) studied a population from grassland in the Southern Alps of New Zealand, which was readily reared on bacteria - and fungus - feeding nematodes. The life cycle at 20°C was 4-5 days.

REMARKS

The SEM photos of the head end of *S. demani* correspond with the general scheme given by Hooper and Clark (1980) and are in general not unlike those for *S. tenuicaudata* (de Man, 1895) given by these authors, except that in the latter species a lateral lobe is present on either side of the oral aperture, between this and the lateral liplets; the shape of the latter is also different.

By the fact that the females of *S. demani* and possibly *S. aurangabadensis* have apparently no anal opening, these species appear close to the genus *Ektaphelenchoides* Baujard, 1984. Grewal *et al.* (1992) described *S. paynei* in which the anus in females is "generally obscure" and *S. obscura* where it is "in most specimens indistinct". Studies are desired to establish whether this feature is present in other *Seinura* species as well; if so, *Seinura* and *Ektaphelenchoides* might be placed in the same (sub) family.

Acknowledgments

Miss Alison Hoole obtained the SEM micrographs and Mrs. Janet Rowe made the prints for Fig. 1 C, D, E. Mrs. H. van Megen assisted in making the micrographs of Fig. 1 F, G. The Entomology Department of the Agricultural Development and Advisory Service, MAFF, Leeds kindly supplied details of the locality from which the neotype population originated.

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