

## FIRST RECORD OF *XIPHINEMA DENTATUM* STURHAN, 1978 (NEMATODA: LONGIDORIDAE) FROM POLAND

T.J. Prior<sup>1</sup>, W. Karnkowski<sup>2</sup> and S. Hockland<sup>1</sup>

<sup>1</sup> Central Science Laboratory, Sand Hutton, York, YO41 1LZ, UK

<sup>2</sup> Main Inspectorate of Plant Health and Seed Inspection, Central Laboratory, Żwirki i Wigury 73, PL 87 100 Toruń, Poland

**Summary.** *Xiphinema dentatum* Sturhan, 1978 was found in the rhizosphere of *Carpinus betulus* L. (Hornbeam) in the Zoobotanical Garden of Torun, Poland. This is a new record for Polish fauna.

**Key words:** Longidorid, new record.

*Xiphinema dentatum* Sturhan, 1978 was found in the rhizosphere of *Carpinus betulus* L. (Hornbeam) in the Zoobotanical Garden of Torun, Poland. This nematode, originally described from Germany, has since been found and described from territories of the former Yugoslavia (Barsi and Horvatić, 1986; Barsi, 1989, 1996; Radivojević and Baujard, 1998) and Slovak Republic (Lišková, 1994). This is a new record for Polish fauna.

### MATERIALS AND METHODS

Soil samples were taken from July 2006 to May 2007, to a depth of 20-30 cm. A small number of female nematodes were extracted using the Oostenbrink elutriator (Oostenbrink, 1960). No male or juvenile specimens were found. Specimens were slowly heat-killed in water at 65 °C, then fixed in TAF (7 ml 40% formaldehyde; 2 ml triethanolamine; 91 ml distilled water), transferred to a 5% glycerol in water solution with a trace of TAF and processed to anhydrous glycerol over a period of ca 10 days via a slow evaporation technique at 40 °C. Permanent slide mounts were made in anhydrous glycerol (Hooper, 1986).

### DESCRIPTION

#### *XIPHINEMA DENTATUM* Sturhan, 1978 (Figs 1-2)

*Measurements.* See Table I; Figs 1 and 2.

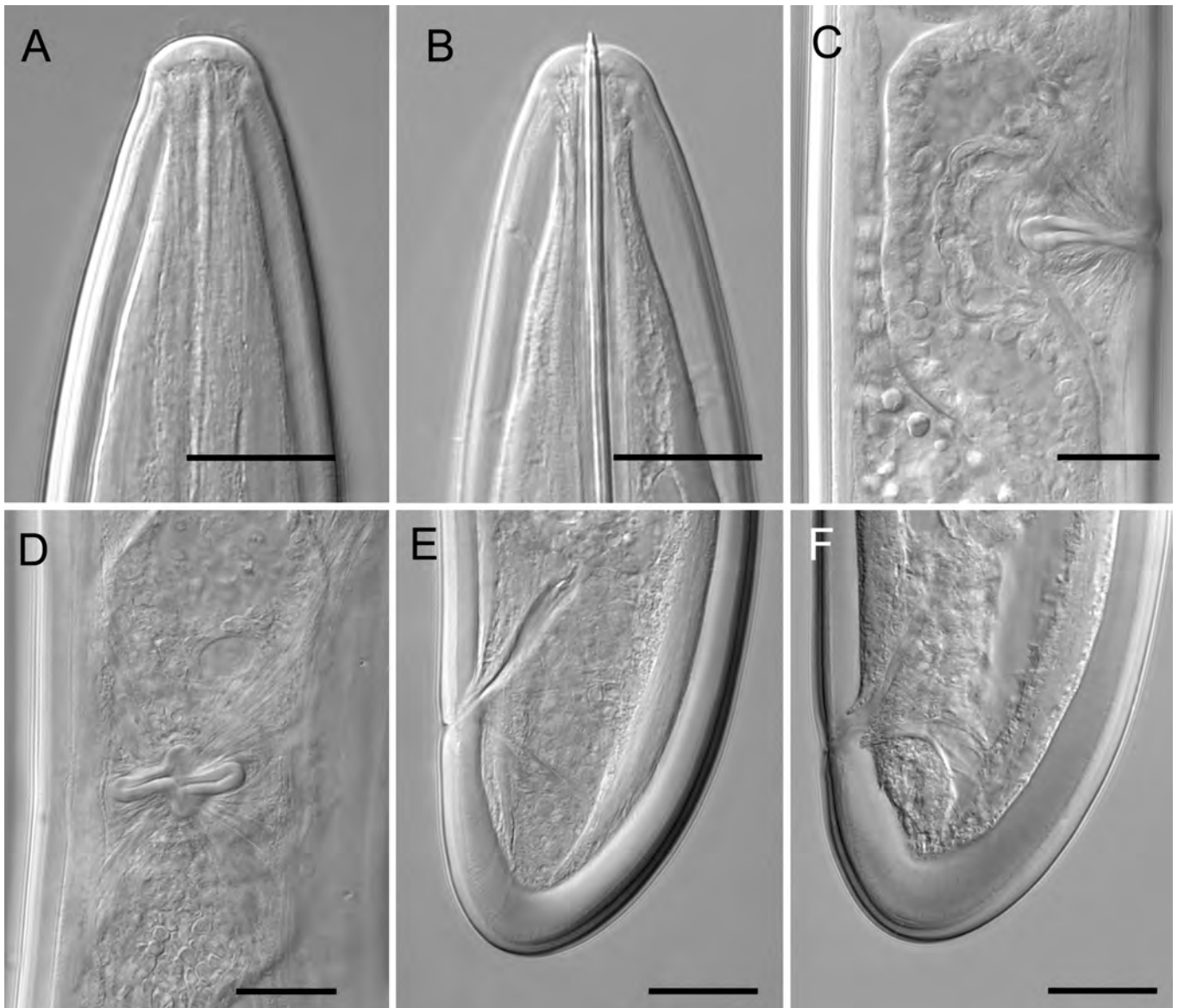
*Female.* Habitus strongly ventrally arcuate to open C-shaped after fixation. Body cylindrical, tapering in anterior extremity. Lip region rounded and demarcated by a

shallow depression. Amphidial pouches stirrup-shaped. Odontostyle, odontophore and guiding sheath typical of the genus, the width of odontophore flanges  $15.8 \pm 1$  (14.5-17.8)  $\mu\text{m}$  at the widest point. Pharynx dorylaimoid,  $513.0 \pm 32.7$  (485-578.5)  $\mu\text{m}$  long with pharyngeal bulb  $106.3 \pm 12.4$  (85.9-111.2)  $\mu\text{m}$  long and  $30 \pm 2.7$  (25.4-32.6)  $\mu\text{m}$  wide. Amphidelphic tripartite reproductive system. Mean length of anterior and posterior genital branches  $853 \pm 110.1$  (741-1027)  $\mu\text{m}$  and  $827 \pm 67.1$  (734-915)  $\mu\text{m}$  respectively (see Fig. 2). Vulva situated just anterior to mid-body, vagina extending  $40.1 \pm 4.0$  (34.2-45.2)  $\mu\text{m}$  into body and  $19.7 \pm 1.8$  (17.4-22.5)  $\mu\text{m}$  at the widest point. Ovejektor kidney-shaped,  $18.2 \pm 5.7$  (10.8-25.7)  $\mu\text{m}$  wide at the level of the vulva and approximately 70-80  $\mu\text{m}$  long with inner epithelium in the form of irregular globular outcroppings. Uterus up to 500  $\mu\text{m}$  long, with the pseudo Z-organ and the *pars dilatata uteri* about

**Table I.** Morphometric data for *Xiphinema dentatum* from Poland. Measurements are in the form: mean  $\pm$  standard deviation (range) and coefficient of variation.

Character	Female
n	8
L (mm)	$4.05 \pm 0.3$ (3.74-4.41) 7.0
a	$55.2 \pm 6.7$ (46.4-62.9) 12.7
b	$7.9 \pm 0.2$ (7.5-8.2) 3.1
c	$114.4 \pm 14.8$ (87.2-135.4) 12.9
c'	$0.7 \pm 0.1$ (0.6-0.8) 11.2
V	$47.9 \pm 1.2$ (45.3-49.4) 2.5
Odontostyle $\mu\text{m}$	$140.2 \pm 3.9$ (135-145) 2.8
Odontophore $\mu\text{m}$	$87.6 \pm 3.8$ (81.6-92.9) 4.4
Total stylet $\mu\text{m}$	$223.8 \pm 7.3$ (210.7-232.1) 3.3
Oral aperture to guide ring $\mu\text{m}$	$118 \pm 8.5$ (103.4-128.2) 7.2
Tail $\mu\text{m}$	$35.7 \pm 3.3$ (32.6-42.9) 9.3
J (hyaline portion of tail) $\mu\text{m}$	$12.5 \pm 1.7$ (9.4-14.8) 14.0
Body diam. at lip region $\mu\text{m}$	$16.3 \pm 0.3$ (16.0-16.9) 2.0
Body diam. at guide ring $\mu\text{m}$	$47.6 \pm 2.4$ (44.4-50.8) 5.07
Body diam. at base of pharynx $\mu\text{m}$	$66.0 \pm 6.14$ (60.8-76.8) 9.3
Body diam. at vulva $\mu\text{m}$	$75.5 \pm 6.5$ (67.8-80.4) 8.6
Body diam. at anus $\mu\text{m}$	$52.2 \pm 3.1$ (48.7-57.4) 5.9
Body diam. at beginning of J $\mu\text{m}$	$33.0 \pm 3.8$ (27.9-38.2) 11.6

<sup>1</sup> Contact author e-mail: t.prior@cs.l.gov.uk



**Fig. 1.** Variation of lip region (A, B), lateral (C) and ventral (D) view of vulval region, and variation of tail region (E, F) of *Xiphinema dentatum* ex. Poland. (Scale bars = 20  $\mu\text{m}$ ).

30  $\mu\text{m}$  and 100-120  $\mu\text{m}$  in length respectively. No spines or crystalloides were observed in the uterus. Pseudo Z-organ containing several angular apophyses (see Fig. 2). *Pars dilatata uteri* large, around 45  $\mu\text{m}$  wide. *Pars dilatata oviductus* and slender part of oviduct about 150  $\mu\text{m}$  long. Ovary reflexed, about 120  $\mu\text{m}$ , with more or less twenty cells in the germinal zone and usually five cells in the growth zone. Ovarial sac large, well marked from proximal part of oviduct. Rectum  $35.2 \pm 4.7$  (27.5-42.1)  $\mu\text{m}$  long. Tail short, rounded, terminal blind canal absent.

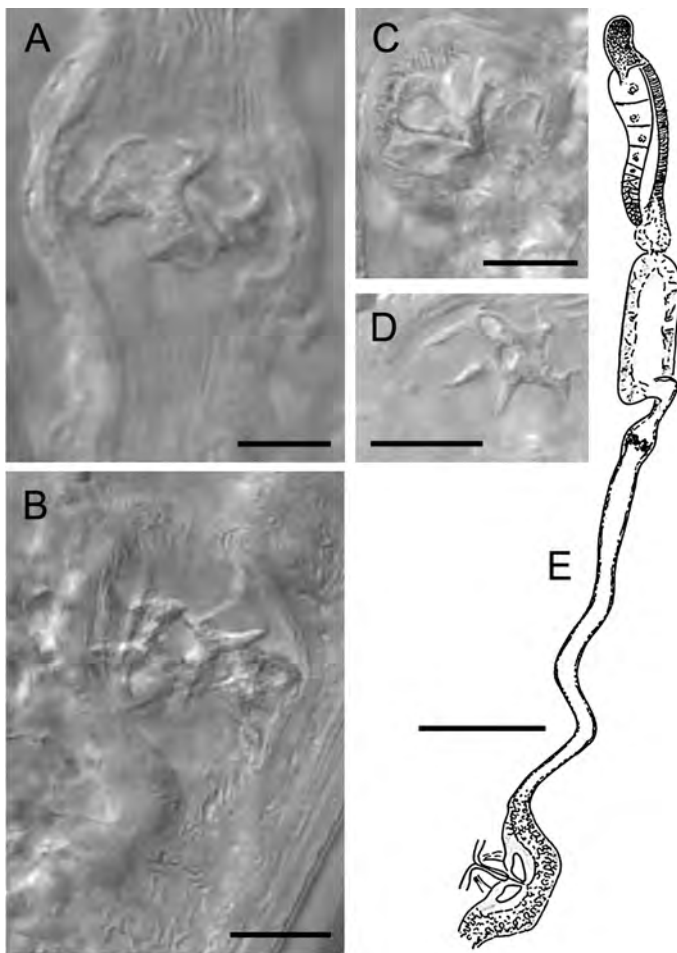
*Male.* Not found.

*Juveniles.* Not found

*Remarks.* This population is morphologically and morphometrically similar to the description given of the type population (Sturhan, 1978) and to the descriptions

given by Barsi (1989, 1996) and Lišková (1994). The population described here does, however, have a longer average body length than these populations, other than that recorded from *Corylus avellana* Ledinci (Barsi, 1989), and a more variable 'c' ratio. This population also has a greater 'a' ratio than the population from Gôtovany (Lišková, 1994), a longer distance from the oral aperture to the guide ring than the two populations from the Malinik mountains, Serbia (Barsi, 1996), and a greater diameter at base of the pharynx than the population described from *C. avellana* (Barsi, 1989). This is considered to be intraspecific variation.

The three populations described by Radivojević and Baujard (1998) from Zlatibor and the Goch mountains in Serbia and Durmitor mountain in Montenegro are not compared to the population described here. Populations 2 and 3 are recorded as having a longer odontostyle and odontophore, a greater oral aperture to



**Fig. 2.** Lateral (A, B) and transverse (C) views of pseudo Z-organ, shape of a single apophysis (D) and anterior female genital branch (E) of *Xiphinema dentatum* ex. Poland. (Scale bars A-D = 10  $\mu$ m; E = 100  $\mu$ m).

guide ring distance and longer rectum than populations previously described. Morphological characters of males and juveniles described by others also differ between populations. The identity of the material described by these authors should be re-examined.

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