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Xiphinema species from the Surchandarja region of Uzbekistan

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Summary. A preliminary survey of *Xiphinema* species was carried out in the Surchandarja region of Uzbekistan. Three species of *Xiphinema: X. brevicolle, X. index* and *X. pachtaicum* were found in the rhizosphere of subtropical wood cultures. The latter two species were widespread in the region. Morphological characteristics, morphometrics and the distribution of the species are presented.
Key words: *Xiphinema* spp., distribution, morphometrics, Uzbekistan.

Xiphinema species have been reported from different regions of Uzbekistan (Tulaganov, 1938, 1949; Azizova, 1970; Khurramov, 1978; Romanenko, 1985, 1992). The distribution and morphometrics of *Xiphinema* species found in South Uzbekistan in the Surchandarja region are reported here.

MATERIALS AND METHODS

Approximately 120 soil samples were collected from various districts of the Surchandarja region. The samples were taken from the rhizosphere of pomegranate (*Punica granatum*), fig (*Ficus carica*), almond (*Amygdalus communis*), grapevine (*Vitis vinifera*), walnut (*Juglas regia*), laurel (*Laurus nobilus*), persimmon (*Diospyros lotus*) and jujube (*Zizyphus jujuba*). Nematodes were extracted using a modified Cobb's method, killed by gentle heat, fixed in TAF, processed to glycerol and mounted on permanent slides in dehydrated glycerin.

RESULTS AND DISCUSSION

Three species of *Xiphinema*: *X. brevicolle, X. index* and *X. pachtaicum* were found in the Surchandarja region of Uzbekistan. The latter two species were the most widespread (Fig. 1).

DESCRIPTION

Xiphinema brevicolle Lordello et Da Costa, 1961

Females: Body coiled in an open C shape when fixed. Lip region gently rounded, offset from body by a shallow constriction. Genital tract without special features, Z-organ absent. Tail short, conical with rounded terminus.

The morphometrics of ten females found in the rhizosphere walnut at Denau district: L= 2.1 (1.9-2.2) mm; a= 49 (46-52); b= 6.5 (6.0-7.5); c= 73 (68-79); c'= 1.1 (1.0-1.2); V= 53 (49-56) %; odontostyle = 96 (93-103) μm; odontophore = 58 (53-63) μm; oral aperture to guiding ring = 89 (84-93) μm; tail = 29 (26-30) μm; J = 10 (9-13) μm; body diameter at lip region = 11 (10-11) μm; body diameter at guiding ring = 31 (28-33) μm; body diameter at base of oesophagus = 38 (36-40) μm; body diameter at mid-body = 43 (40-45) μm; body diameter at anus = 26 (25-28) μm; body diameter at beginning of J = 13 (12-13) μm.

Males were not found.

The morphometrics of a population of *X. brevicolle* from the Denau district agree with those of populations from Europe: Hungary,

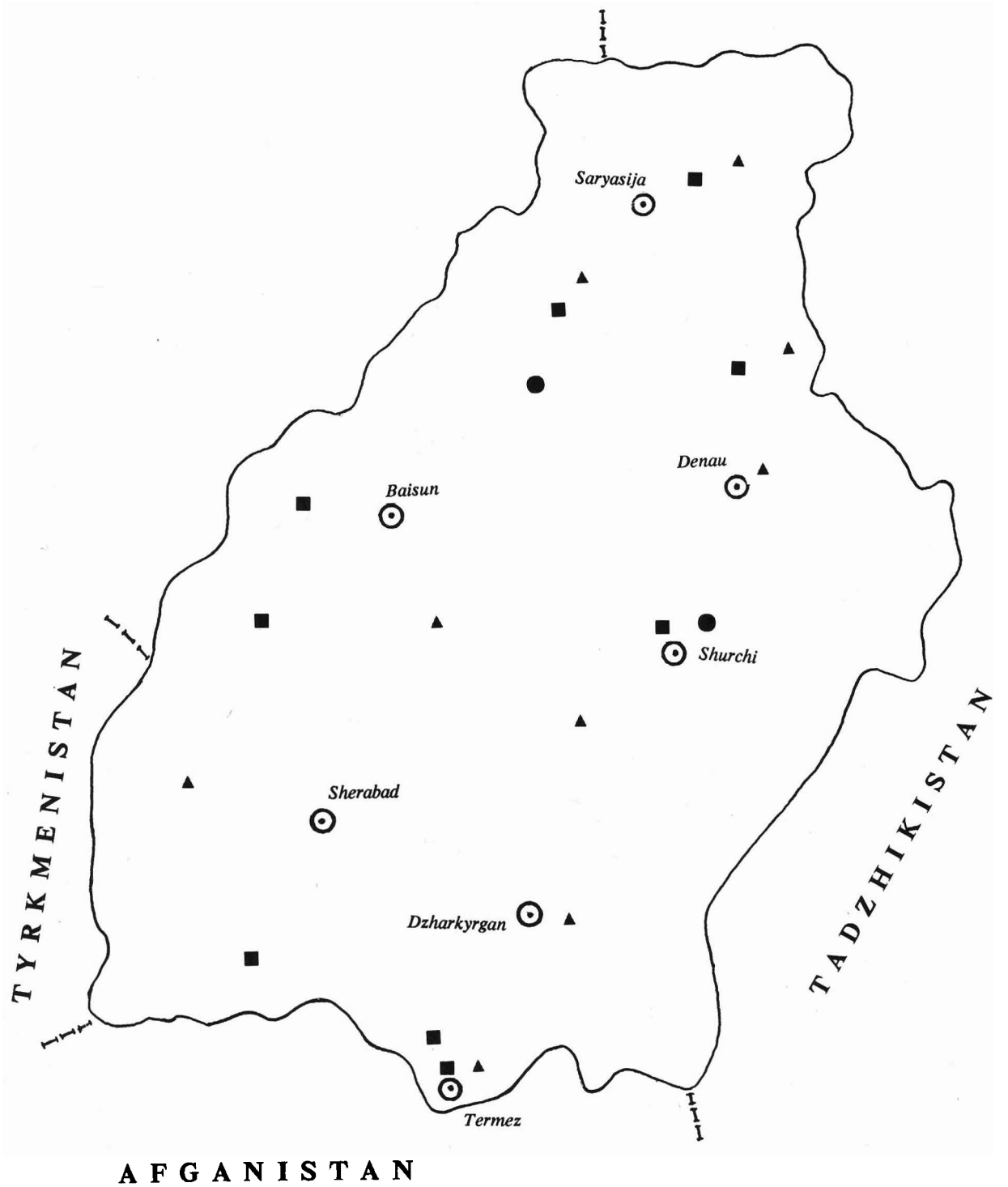

Fig. 1. Distribution of *Xiphinema* species in the Surchandarja region of Uzbekistan. ● — *X. brevicolle;* ■ — *X. index;* ▲ — *X. pachtaicum*

Czechoslovakia, Poland (Lamberti & Bleve-Zacheo, 1979). Bulgaria (Lamberti et al., 1983), Yugoslavia (Barsi, 1989) and Italy (Coiro et al., 1989), however it differs by having a longer distance from the oral aperture to guiding ring (84-93 vs 64-83 μm). The distance from the oral aperture to guiding ring of females from Uzbekistan is similar to the measurements of a population from Altai (Romanenko, 1992).

Table 1. Morphometrics of two populations of *X. index* from the Surchandarja region of Uzbekistan.

Locality and plant-host	Termez	Kaptarhana pomegranate
n (females)	12	6
L mm	3.3(2.8-3.6)	3.1(3.0-3.3)
a	67(60-73)	68(66-70)
b	7.0(6.5-7.6)	7.1(6.4-8.0)
c	81(74-93)	75(72-78)
c'	1.1(1.0-1.2)	1.1(1.1-1.2)
V%	39(37-42)	39(35-41)
Odontostyle μm	125(123-130)	123(118-127)
Odontophore μm	76(73-78)	75(70-78)
Oral aperture to guiding ring μm	113(105-120)	115(108-120)
Tail μm	41(36-45)	42(40-45)
J μm	14(10-18)	15(14-16)
Body diameter μm		
at lip region	11(10-13)	11(10-13)
at guiding ring	35(33-36)	35(33-36)
at base of oesophagus	43(38-48)	42(35-45)
at mid-body	49(40-50)	45(43-50)
at anus	36(33-39)	37(35-40)

Xiphinema index Thorne et Allen, 1950

Females: Body curved forming a C-shape. Lip region rounded, almost continuous with body contour. Genital tract without special features. Tail rounded, dorsally convex with peg, 5-13 μm long.

The morphometrics of two populations from the rhizosphere of fig (Termez) and pomegranate (Kaptarchana) are given in Table 1.

Males were not found.

The morphometrics of *X. index* from Uzbekistan are in general agreement with those of this species from Tadzhikistan (Kankina, 1978), Maltese islands (Lamberti et al., 1982), Bulgaria (Lamberti et al., 1983), Yugoslavia (Barsi, 1989) and Italy (Coiro et al., 1989).

X. index were also found in the rhizosphere of almond, persimmon and jujube.

Xiphinema pachtaicum (Tulaganov, 1938) Kirjanova, 1951

Females: Body forming a C-shape or twisted in a spiral. Lip region somewhat flattened, set off by a deep constriction. Genital tract without Z - organ. Tail short, conical with narrow rounded terminus.

No **males** were found.

The morphometrics of two populations of *X. pachtaicum* collected at Denau (pomegranate) and at Termez (grapevine) are given in Table 2.

X. pachtaicum was described by Tulaganov (1938) from Uzbekistan. The population from the Surchandarja region are morphometrically identical to the population from Tadzhikistan (Kankina, 1978),

Table 2. Morphometrics of two populations of *X. pachtaicum* from the Surchandarja region of Uzbekistan.

Locality and plant-host	Denau pomegranate	Termez grapevine
n (females)	2	10
L mm	1.9(1.8-1.9)	1.9(1.8-2.1)
a	68(66-70)	68(59-73)
b	7.6(5.6-9.5)	6.6(5.5-9.3)
c	68(66-70)	70(63-81)
c'	1.6(1.4-1.8)	1.6(1.4-1.8)
V%	56(56-57)	56(52-58)
Odontostyle μm	84(83-85)	84(80-88)
Odontophore μm	50	49(48-53)
Oral aperture to guiding ring μm	75	74(70-80)
Tail μm	28	28(25-31)
J μm	9.4(8.8-10)	7.8(6.3-8.8)
Body diameter μm		
at lip region	8.9(8.8-9.0)	8.7(8.0-10)
at guiding ring	21	22(20-23)
at base of oesophagus	26(25-26)	26(25-28)
at mid-body	28	28(25-30)
at anus	18(15-20)	17(16-18)
at beginning of J	7.8(7.5-8)	6.4(5-7.5)

Turkmenistan, Ukraine, Uzbekistan (Romanenko, 1992) and European populations (Lamberti & Martelli, 1971; Lamberti et al., 1983; Lamberti & Bleve-Zacheo, 1979; Barsi, 1989; Coiro et al., 1989).

Nematodes were also found in the rhizosphere of fig, almond and laurel.

REFERENCES

Azizova, E. P. 1970. [*Xiphinema index* Thorne et Allen, 1950 (Nematoda: Longidoridae) - a new parasite of grapevine in Uzbekistan]. *Nauchnye Trudy Tashkentskogo Gosudarstvennogo Universiteta* 378: 36-44.

Kankina, V. K. 1978. [Plant parasitic nematodes of grapevine from genus *Xiphinema* Cobb, 1913 (Nematoda: Longidoridae) in Tadzhikistan]. *Izvestija Akademii Nauk Tadzhikskoi SSR. Otdelenie Biologicheskikh Nauk* 70: 36-41.

Romanenko, N. D. 1985. [Distribution of nematodes from family Longidoridae in fruit and berry plantations in USSR]. *Sbornik Trudov NIZISNP. Progresivnye Sposoby Vyrashchivanija i Sortoizuchenija* 112-120.

Romanenko, N. D. 1992. [Variability of main morphometric characteristics and identification of species from genus *Xiphinema* (Nematoda: Longidoridae)]. *Trudy GELAN* 39 (in press).

Tulaganov, A. T. 1938. [Nematode faune of cotton and surrounding soil in Katta-Kurganskii region of Uzbekistan]. *Trudy Uzbekskogo Gosuniversiteta* 12: 1-25.

Tulaganov, A. T. 1949. [*Plant Parasitic and Soil Living Nematodes of Uzbekistan*]. Izd. Instituta Botaniki i Zoologii AN UzSSR, Tashkent, 227 pp.

Khurramov, Sh. Kh. 1978. [To the distribution of plant parasitic nematodes in South Uzbekistan]. In: *Fitogel'mintologicheskie Issledovanija*, Moscow, Nauka, 146-157.

Barsi, L. 1989. The Longidoridae (Nematoda: Dorylaimida) in Yugoslavia. 1. *Nematologia Mediterranea* 17: 97-108.

Coiro, M. I., Lamberti, F. , Agostinelli, A. & Vindimian, M. E. 1989. 1. Longidoridae nei vigneti del trentino. II Il genere *Xiphinema* Cobb. *Nematologia Mediterranea* 17: 139-148.

Lamberti, F. & Martelli, G. P. 1971. Notes on *Xiphinema Mediterraneum* (Nematoda: Longidoridae). *Nematologica* 17: 75-81.

Lamberti, F. & Bleve-Zacheo, T. 1979. Studies on *Xiphinema americanum* sensu lato with description of fifteen new species (Nematoda: Longidoridae). *Nematologia Mediterranea* 7: 51-106.

Lamberti, F., Bleve-Zacheo, T. & Arias, M. 1982. The Longidoridae of the Maltese Islands with the description of *Longidorus magnus* sp. n. and *Xiphinema melitense* sp. n. *Nematologia Mediterranea* 10: 183-200.

Lamberti, F., Choleva, B. & Agostinelli, A. 1983. Longidoridae from Bulgaria (Nematoda, Dorylaimida) with description of three new species of *Longidorus* and two new species of *Xiphinema*. *Nematologia Mediterranea* 11: 49-72.

Хуррамов Ш. Х, Субботин С. А. Ксифинемы из Сурхандарьинской области Узбекистана.
Резюме. В результате обследования древесных субтропических культур на юге Узбекистана на территории Сурхандарьинской области было обнаружено три вида *Xiphinema*: *X. brevicolle*, *X. index* и *X. pachtaicum*. Приводится морфология, морфометрия и карта распространения этих видов в области.