

Observations on *Xiphinema vitis* Heyns, 1974, *X. elongatum* Schuurmans Stekhoven & Teunissen, 1938, *X. fatikae fatikae* Bos & Loof, 1985, and description of *X. fatikae eburnense* subsp. n. (Nemata : Longidoridae), from Africa

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SUMMARY

Description and illustration are given for a population of *Xiphinema vitis* Heyns, 1974, mixed with a population of *X. elongatum* Schuurmans Stekhoven & Teunissen, 1938, from around maize roots in Burundi. Both populations are slightly different from the previous descriptions; all juvenile stages are described for *X. vitis*. Various populations of *X. fatikae* Bos & Loof, 1985 from West Africa are also described and illustrated. Two subspecies are defined, differing mainly by the structure of the Z-organ: *X. fatikae fatikae* Bos & Loof, 1985, type subspecies, from Nigeria and Benin, and *X. fatikae eburnense* subsp. n., from Ivory Coast.

RÉSUMÉ

Observations sur *Xiphinema vitis* Heyns, 1974, *X. elongatum* Schuurmans Stekhoven & Teunissen, 1938, *X. fatikae fatikae* Bos & Loof, 1985, and description of *X. fatikae eburnense* subsp. n. (Nemata : Longidoridae), provenant d'Afrique

Description et illustration sont produites pour une population de *Xiphinema vitis* Heyns, 1974 récoltée en mélange avec une population de *X. elongatum* Schuurmans Stekhoven & Teunissen, 1938 dans la rhizosphère de maïs au Burundi. L'une et l'autre populations diffèrent légèrement de celles antérieurement décrites. Plusieurs populations de *X. fatikae* Bos & Loof, 1985 provenant d'Afrique de l'Ouest sont également décrites et illustrées. Deux sous-espèces sont définies qui diffèrent principalement par la structure de leur organe Z : *X. fatikae fatikae* Bos & Loof, 1985, sous-espèce type (Nigeria et Bénin), et *X. fatikae eburnense* subsp. n. (Côte d'Ivoire).

This article reports data on two known *Xiphinema* species found in mixed populations in Burundi — *X. vitis* Heyns, 1974 and *X. elongatum* Schuurmans Stekhoven & Teunissen, 1938 —, and on *X. fatikae* Bos & Loof, 1985, from Nigeria, Benin and Ivory Coast. Two subspecies are differentiated in this latter species: *X. fatikae fatikae* Bos & Loof, 1985, type subspecies (Nigeria and Benin), and *X. fatikae eburnense* subsp. n. (Ivory Coast).

Soil samples from Burundi were extracted with the centrifugation-flotation technique using the silicagel Ludox. The nematodes were fixed with 4 % formaldehyde at 70° C, and processed to anhydrous glycerine by a modified Seinhorst method. The material from West Africa was extracted using Seinhorst's (1962) elutri-

ator, fixed with FA 4 : 10 and processed to anhydrous glycerine using Seinhorst's (1959) rapid method.

Xiphinema vitis Heyns, 1974
(Fig. 1)

MEASUREMENTS

See Table 1.

DESCRIPTION

Female : Body long, cylindrical, assuming "C" shape when relaxed, tapering at both ends. Cuticle 2.5-3.0 µm thick at mid-body, consisting of two main layers, thickest on tail, where cuticle is 5.5-8.0 µm on dorsal side; inner radial striae well visible on tail. Lateral chord

(**) Nematologist ORSTOM.

Table 1
Measurement of *Xiphinema vitis* Heyns, 1974 (in μm , unless otherwise stated)

	Females	Male	f1	f2	f3	f4
n	31	1	6	4	9	17
L (mm)	3.25 (2.85-3.83)	3.11	0.89 (0.81-0.95)	1.28 (1.23-1.32)	1.70 (1.60-1.86)	2.42 (1.95-3.54)
a	73.3 (57.9-92.2)	72.1	49.9 (42.9-52.7)	52.2 (48.2-57.2)	52.7 (50.5-66.9)	60.3 (55.0-89.8)
b	7.0 (5.8-8.2)	6.7	3.7 (3.5-3.9)	4.3 (4.2-4.5)	5.1 (4.7-5.4)	5.9 (5.1-8.1)
c	62.2 (53.1-82.7)	58.7	19.3 (17.9-20.8)	25.1 (24.1-25.7)	32.8 (27.2-35.7)	43.1 (38.2-61.7)
c'	1.6 (1.3-2.2)	1.4	3.6 (3.3-4.1)	3.1 (3.0-3.3)	2.5 (2.2-3.2)	2.0 (1.8-2.3)
V	42.2 (39-49.6)	—	—	—	—	—
Lip reg. width	13.7 (12.5-15.5)	12	8.0 (8.0-8.5)	9.5 (9.0-9.5)	10.0 (8.5-10)	11.5 (10-12.5)
Lip reg. height	7.8 (5.5-9.0)	6	3.0	3.0 (3.0-3.5)	3.5 (3-4)	4.0 (3.5-6.0)
Od. style	112.0 (104-120.5)	119	42.5 (39-48.5)	60.7 (54.5-65)	76.5 (72-79)	92.5 (83.5-97.5)
Od. phore	71 (65.5-80)	69.5	34 (33-36.5)	43.5 (42-45.5)	48 (42-54.5)	58 (51-63)
Tot. styl.	183.5 (169.5-197)	188.5	77.5 (74-79)	104.5 (97-109)	124.5 (119.5-132)	150.5 (136.5-159)
Repl. od. style	—	—	58.5 (50.5-64)	80 (74.5-81)	91 (86.5-95)	109.5 (101-120)
Flanges width	10 (7.2-12)	9	5.5 (5-6)	7 (6.5-8)	7.5 (6-9.5)	8.5 (7.2-11.5)
Guide ring	98.5 (63.5-116)	101.5	35 (29.5-42.5)	56.5 (48.5-65)	66.5 (56.5-79)	78.5 (69-87.5)
Phar. bulb length	103.5 (90.5-116)	102.5	58.5 (56-62)	68 (63-72.5)	71.5 (65-79)	85.5 (79-95)
Phar. bulb width	19 (15.5-24.5)	17	10.5 (8.5-12.5)	14 (13-15.5)	14 (11-15.5)	16 (11.5-20)
Body diam. mid-body	45 (33-57)	42	18 (15.5-21)	25 (21.5-27.5)	29.5 (24-35)	38 (29.5-50)
Body diam. anus level	32 (24-36)	36	12.5 (11-14.5)	16 (15.5-17)	20.5 (18-26.5)	27.5 (21-30.5)
Rectum	35 (29-44)	—	11.5 (9.5-12.5)	14 (12.5-15)	19 (15-23)	26.5 (21-29)
Tail	52.5 (42-62)	53	46.5 (44.5-49)	51 (51-51.5)	53 (48.5-59.5)	53.5 (48.5-63.5)

occupying 1/3 to 1/5 of corresponding body diameter. Lateral body pores distinct, 14-20 in the neck region; 2-5 dorsal and 11-13 ventral body pores observed in neck region. Lip region rounded, separated from body by a slight constriction. Amphid large, fovea stirrup-shaped with slit-like aperture, 7.5-9.0 μm wide, located slightly anterior to constriction. Stylet conforms to genus; guiding ring situated around posterior end of odontostyle *i.e.* at about 88 % (84-104) of odontostyle. Vestigium 3-6.5 μm long, observed in all specimens, variable in position, posteriorly directed in some specimens. Neck 458 (408-503) μm long. Slender part of pharynx 159 (90.5-189) μm long. Pharyngeal bulb with large distinct dorsal gland nucleus and pair of ventrosublateral gland nuclei; nuclei and their outlets located as follows ($n = 5$): DN = 10.9 % (9.5-13.2); DO = 7.1 (6.3-8.8); RSN = 50.2 (47.8-51.7); LSN = 51.6 (49-56.7); SO (both at same level) = 73.8 (71.4-75.6). Cardia 12 μm (9-16) long. Intestinal cells packed with refractive granules. Prerectum 520 (274-792) μm long or 15.9 % (9.6-20.6) of body length, demarcated from intestine by a lesser diameter and having fewer granules. Rectum slightly longer than anal body diameter. Two complete female genital branches equally developed or nearly so: anterior branch = 331 (269-474) μm or 10.3 (8.6-13.6) %; posterior branch = 383 (300-505) μm or 12.2 (9.3-13.6) %. Ovary and oviduct conform to genus. Anterior oviduct = 111 (93-132) μm ; posterior oviduct = 128 (95-195) μm ; anterior uterus = 210 (156-326) μm ; posterior uterus = 240 (155-308) μm long. *Pars dilatata oviductus* and *pars dilatata uteri* well developed, linked by a prominent sphincter. Uterus without any Z-differentiation nor spines or various globules; long slender part of uterus mostly coiled. No sperms observed in uterus. Ovejector stout, lumen with ventral hook-like projections. Vulva a transverse slit in ventral view, 14 μm long ($n = 1$) *i.e.* one third of vulvar body diameter. Vagina distally with well cuticularized wall with transverse slit, at first, soon becoming cross-shaped; proximal part thick-walled, surrounded by sphincter muscles. Tail conoid, curvature mainly dorsal, extremity subdigitate; two or three pairs of caudal pores. Non protoplasmic hyaline part about 30.4 % (26.2-35.7) of tail length.

Male: Similar to female in general appearance. Neck 462.5 μm long. Slender part of pharynx 156.5 μm long. Prerectum 468 μm long. Supplements consist of an adanal pair of ventrosubmedian papillae and a series of three ventromedian ones, arranged as shown in Fig. 1 D. Copulatory muscles well developed. Spicules 59.5 μm long, ventrally arcuate. Lateral guiding pieces 9.5 μm long. Tail short, conoid with sub-digitate terminus and with five pores on each side; non protoplasmic hyaline part = 21.6 % of tail length.

Juveniles: All stages were found. They resemble adults in body posture and shape. Juvenile tails become

shorter and broader after each moult. In J1, J2 and J3 tail is regularly conical and ventrally arcuate; in J4, tail shows a slight terminal digitation.

LOCALITY AND HABITAT

Soil, maize field and fallow with maize as previous crop, Institut des Sciences Agronomiques du Burundi (ISABU), Gisozi, Burundi (*rec. et leg.*: Ir. M. Goethals). Mixed with *X. elongatum*.

VOUCHER SPECIMENS

Deposited in the collection of the Instituut voor Dierkunde, Rijksuniversiteit Gent, Belgium.

DISCUSSION

X. vitis has been recorded in various places in South Africa (Heyns, 1974). The population from Burundi studied here generally conforms to the original description, namely in body posture, labial area shape, stylet length, value of V. Some minor differences were observed in the following items: *i*) body of female slightly longer (2.85-3.83 mm *vs* 2.62-3.45 mm in orig. descript.); *ii*) female tail more distinctly digitate; *iii*) spicules longer (59.5 μm *vs* 51-54 μm); *iv*) male tail with shorter digitation. All these slight variations are considered as intra-specific.

Xiphinema elongatum Schuurmans Stekhoven & Teunissen, 1938
(Fig. 2)

MEASUREMENTS

Female ($n = 12$): L = 2.73 (2.50-3.10) mm; a = 71.1 (59.6-78.7); b = 7.0 (6.2-7.8); c = 41.1 (36.2-48.8); c' = 2.5 (1.7-3.0); V = 37.3 (34-43); lip region width = 12.5 (12-14) μm ; lip region height = 6 (6-7) μm ; odontostyle = 87 (84-92.5) μm ; odontophore = 62 (59-67) μm ; total stylet = 149 (143-158.5) μm ; dist. ant. end guid. ring = 74.5 (67-78.5) μm ; neck length = 384 (352-412) μm ; slender pharyng. part = 128.5 (117-138) μm ; pharyng. bulb length = 96.5 (81.5-104) μm ; pharyng. bulb width = 20 (17-23) μm ; max. body diam. = 38.5 (33.5-44.5) μm ; anal body diam. = 25 (21-28) μm ; prerectum = 396 (210-623) μm ; rectum = 33.5 (29-39.5) μm ; tail length = 67 (57-72.5) μm .

Male ($n = 1$): L = 2.45 mm; a = 61; b = 5.8; c = 46.3; c' = 1.9; lip region width = 12.5 μm ; lip region height = 5.5 μm ; odontostyle = 102 μm ; odontophore = 66 μm ; total stylet = 168 μm ; dist. ant. end guid. ring = 66 μm ; neck length = 418 μm ; slender pharyng. part = 123 μm ; pharyng. bulb length = 101 μm ; pharyng. bulb width = 19 μm ; max. body

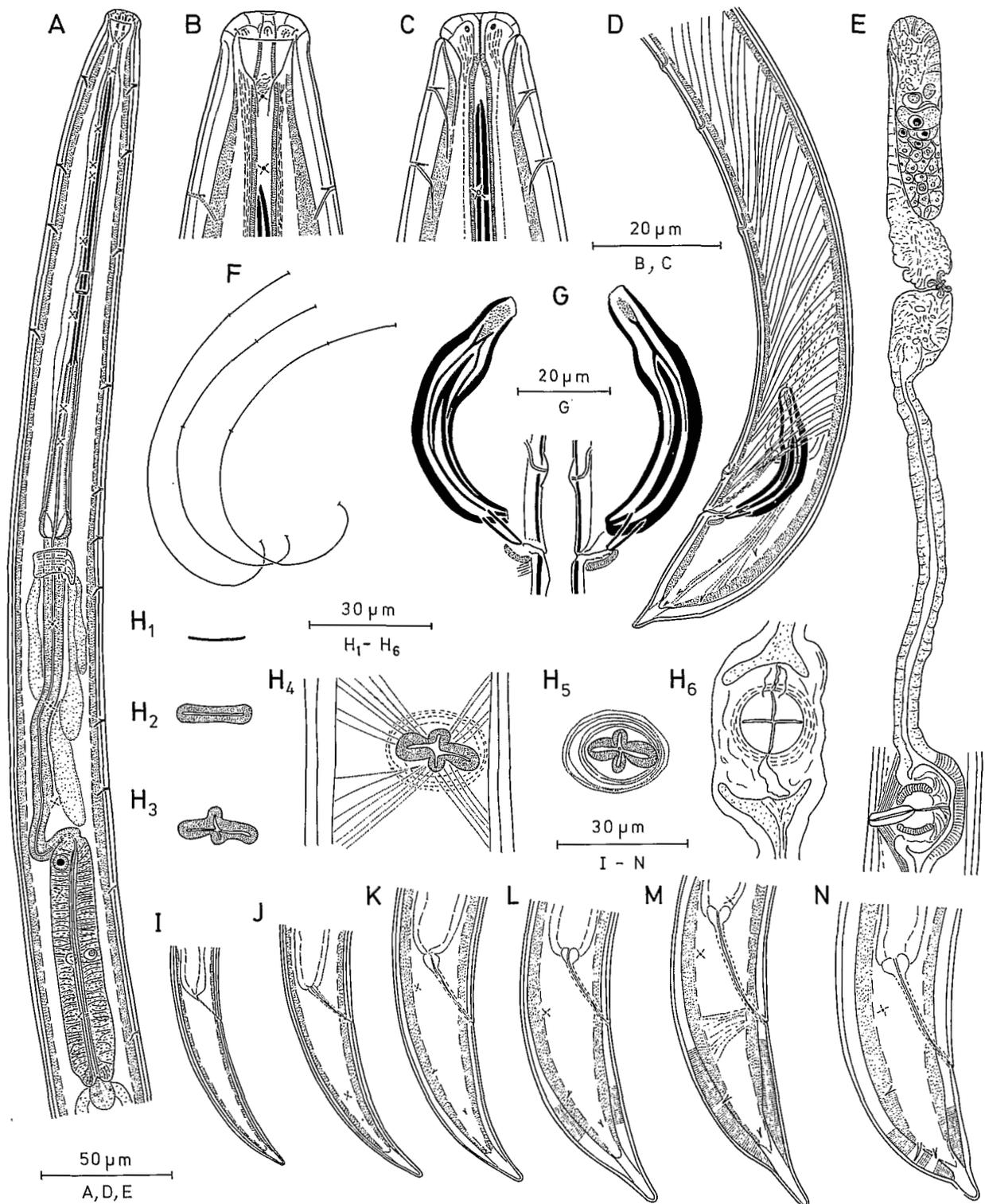


Fig. 1. *Xiphinema vitis* Heyns, 1974 — A : Anterior body region of female; B : Head end (lateral view); C : Head end (dorso-ventral view); D : Posterior body region of male; E : Anterior genital branch of female; F : Body posture of male and females; G : Right and left spicule and lateral guiding pieces of male; H : Vulva (H₁) and subsequent optical sections through vagina. I-L : Tails of juveniles. I : first; J : second; K : third; L : fourth stage. M-N : Female tails.

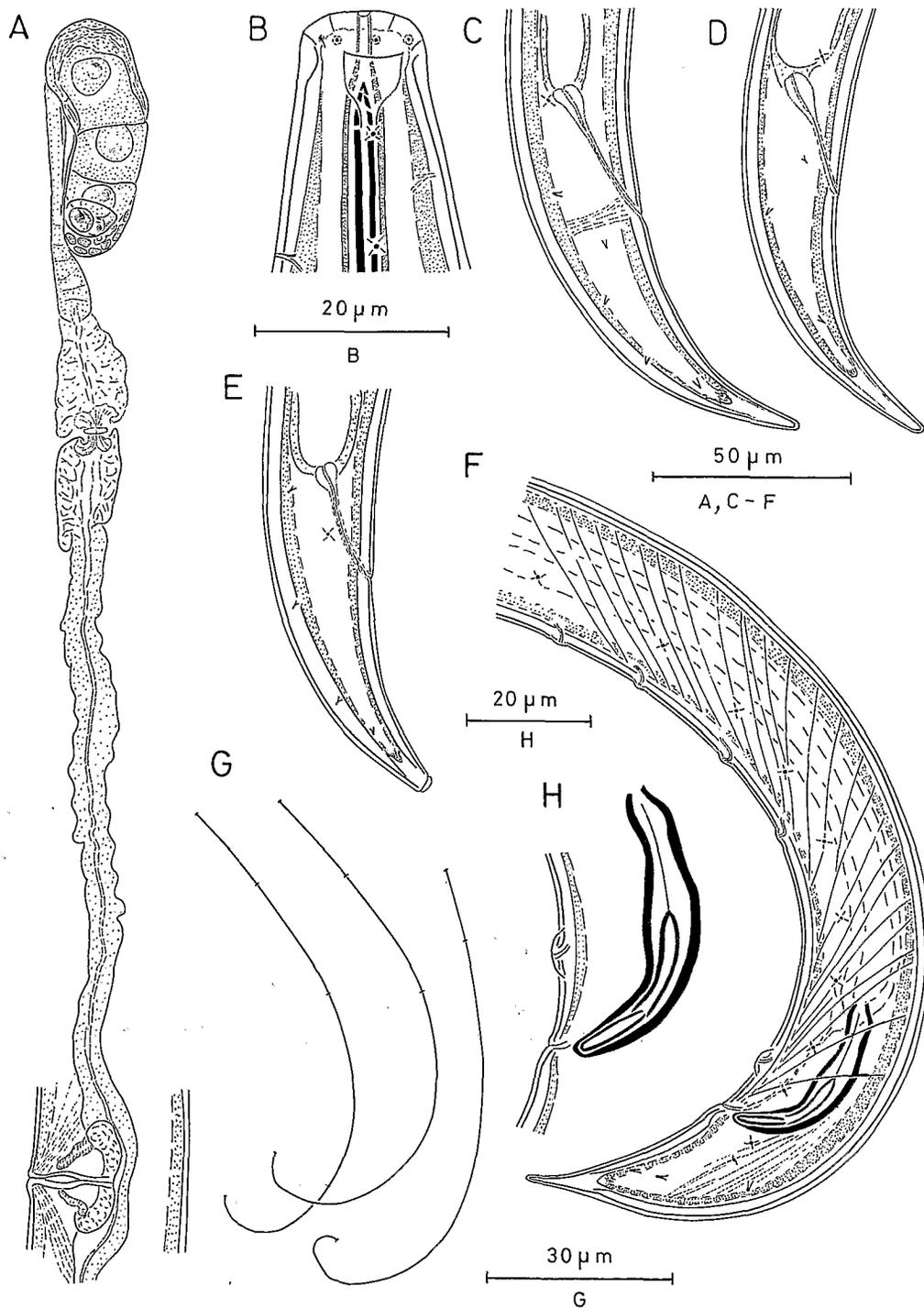


Fig. 2. *Xiphinema elongatum* Schuurmans Stekhoven & Teunissen, 1938 — A : Anterior genital branch of female; B : Head end of female; C-E : Female tails (E abnormal); F : Posterior body region of male; G : Body posture of two females and the male, respectively; H : Left spicule and lateral guiding piece.

diam. = 40 µm; anal body diam. = 27.5 µm; spicules = 53.5 µm; lat. guid. pieces = 12 µm; prerectum = 560 µm; cloaca = 46 µm; tail length = 53 µm.

DESCRIPTION

Females : Anterior and central parts of body slightly arcuate, posterior part strongly curved upon fixation; body tapering at both ends. Cuticle with two main layers, 2-3 µm thick at midbody and increasing to 2.5-5 µm on dorsal side of tail. Lateral chord about 1/4 of the midbody diameter. Dorsal and ventral body pores rather indistinct. Lateral body pores 15-18 in neck region. Lip region rounded, offset by a slight constriction. Amphid large, stirrup-shaped with transverse slit-like aperture, 5.5-7 µm wide, located close to base of lip region. Odontophore with well developed flanges, 11 (9-12.5) µm wide. Vestigium, 2.1 (1.0-3.0) µm long, variable in position. Nerve ring 195.2 (185-243.5) µm from anterior end. Dorsal gland nucleus large; ventro-sublateral gland nuclei small, rather indistinct. Cardia hemispheroid to conoid. Rectum longer than anal body width. Genital branches about equally developed : anterior 296.7 (247.5-339.5) µm, posterior 280 (184-445) µm long. Both ovaries well developed and of about the same size. Uterus with long tubular part usually convoluted and short *pars dilatata*. Ovejector small but well defined. No eggs. Tail elongate conoid, ventrally curved with rounded terminus; three or four pores present on each side; hyaline terminal portion 25 (16.6-31.9) % of tail length.

Male : Similar to female except in sexual characters, and longer stylet. Double ventro-adanal papillae and a series of four ventromedian papillae. Spicules ventrally arcuate; lateral guiding pieces relatively long. Copulatory muscles strongly developed. Tail short, conoid, with a pointed terminus; five caudal pores on each side.

LOCALITY

Soil, maize field, Institut des Sciences Agronomiques du Burundi (ISABU), Gisozi, Burundi (*rec. et leg.* : Ir M. Goethals). Mixed with *X. vitis*.

VOUCHER SPECIMENS

Deposited in the collection of the Instituut voor Dierkunde, Gent, Belgium.

REMARKS

X. elongatum is a well known, very common pan-tropical species of which numerous populations from Africa, India, and South America have been described and illustrated. However the population from Burundi was studied in detail here because it differs slightly from all described populations of the species by *i*) a greater body

length, and *ii*) the tail shape, more curved and pointed than usual. Close body lengths have already been recorded in some specimens from South Africa (Heyns, 1974); also in specimens of these latter populations, as well as in specimen from Brazil (Ferraz, 1980), tail shape is rather similar to that observed in the Burundi population. In addition, the male closely resembles the rare males already described (Heyns, 1974). All other characters, namely the low value V in a didelphic species, length of stylet, structure of the female genital branches, fit very satisfactorily with the definition of *X. elongatum* (see Luc & Southey, 1980). In conclusion we consider the present population as representing a slightly divergent type from the "normal" *X. elongatum*.

Xiphinema fatikae fatikae Bos & Loof, 1985 (Fig. 3)

MEASUREMENTS

See Table 2.

DESCRIPTION

Female : Body strongly ventrally arcuate upon fixation, especially in its posterior third; tapering to both ends. Cuticle 2.5-3.5 µm thick in the middle of the body, 3.5-4.0 µm near the anterior end and 7-8 µm at the dorsal side of the tail; composed of three optically recognisable layers. Lateral chord occupying 1/5-1/4 of the corresponding body width in the middle of the body. Body pores with typical distribution; 15-18 (\bar{x} = 16.2, n = 14) lateral, 2-4 (\bar{x} = 3.6, n = 13) dorsal and 11-12 (\bar{x} = 11.1, n = 10) ventral pores present in the neck region. Lip region rounded, demarcated from body by slight constriction, 13-14 µm wide at the constriction and 6-7 µm high. Amphid aperture occupying 60-70 % of the corresponding diameter, situated just in front of the constriction. Stylet, pharynx and intestine typical for the genus. A small vestigium usually present in the slender part of the pharynx. Hemizonid flattened, 6.0-9.0 % µm wide; hemizonion lenticular, 2.5-3.0 µm wide. Vulva situated about halfway the body length. Two complete, equally developed genital branches. Ovary and oviduct conform to genus, uterus long. The *pars dilatata uteri* connects distally (= towards the vulva) with a well developed Z-organ containing four main, irregularly pointed, sclerotized apophyses and occasionally a few smaller pieces. In some cases tubular part of the uterus with small aggregates of roundish globules. Ovejector well developed, sometimes dorsally constricted at vulva. Vagina with prominently cuticularized lining. Tail at first dorsally convex conoid then cylindrical with rounded tip. Tip occasionally slightly clavate. Cylindrical part straight to slightly ventrally curved and variable in length; mainly formed by the outer layer of the cuticle, enveloping a large canal that

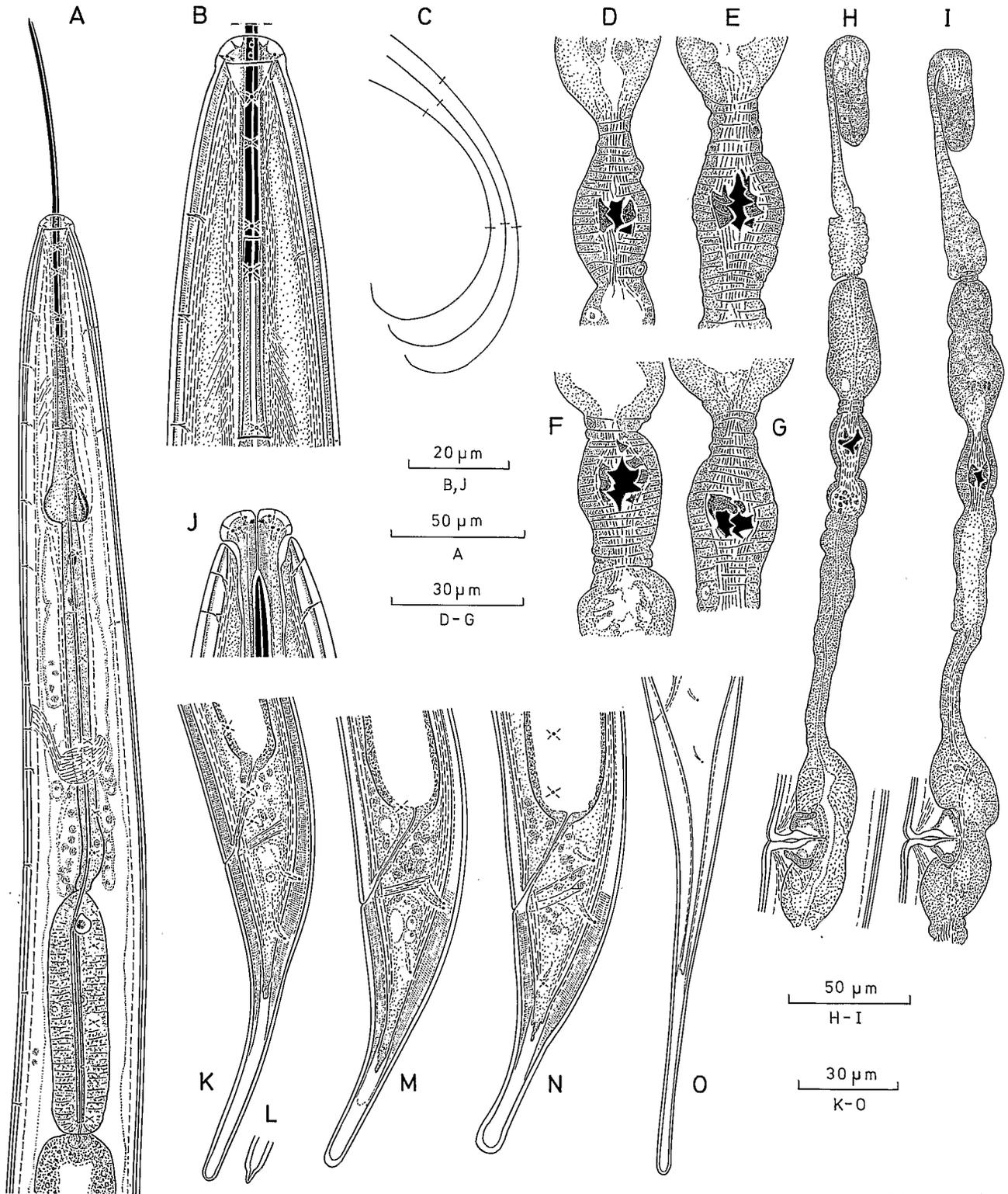


Fig. 3. *Xiphinema fatikae fatikae* Bos & Loof, 1985 — A : Anterior body region; B : Head end; C : Body posture of three females; D-G : Z-organs; H-I : Anterior genital branches; J : Head end (dorso-ventral view); K-N : Female tails (L aberrant tip); O : Tail of third stage juvenile.

Table 2

Measurements of *Xiphinema fatikae fatikae* Bos & Loof, 1985 and *X. fatikae eburnense* subsp. nov. (in μm , unless otherwise stated)

	X. fatikae fatikae				X. fatikae eburnense		
	Pop. 1	Pop. 2	Pop. 3	Pop. 4	Holotype	Paratypes	Pop. 2
n	11	3	2	2	1	2	4
L	2.32 \pm 0.155						2.15
mm	(2.07-2.59)	(2.07-2.19)	(2.21-2.23)	(2.15-2.52)	2.27	(2.16-2.43)	(2.05-2.25)
a	49.8 \pm 2.44		*				45.5
	(45.8-54.9)	(52-53.2)	—	(43-53.6)	55.3	(50.7-70.7)	(44.5-47.7)
b	6.5 \pm 0.46						5.7
	(5.8-7.3)	(6-6.3)	(6.6)	(7.4-7.5)	6.7	(6.2-6.8)	(5.1-7.4)
c	25.5 \pm 3.21						32.3
	(18.5-30.1)	(19.9-22.1)	(25.3-25.7)	(28.3-30.9)	28.9	(29.8-34.5)	(29.9-34.4)
c'	3.1 \pm 0.25						2.4
	(2.7-3.6)	(3.3-3.6)	(2.9-3)	(2.6-2.8)	2.7	(2.3-2.9)	(2.3-2.4)
V	50.2 \pm 1.82						51.2
	(46.8-54.1)	(48.7-51.2)	(48.7-50.1)	(53.8-54.5)	53.6	(52.9-53.2)	(50.4-52.5)
Od. style	111 \pm 1.60						97.5
	(109-113.5)	(100.5-102)	(105-107)	(98-101)	100	(98-102)	(90-104)
Od. phore	65.7 \pm 1.92						59.5
	(62-69)	(64.5-65.5)	(70-71)	(68-69)	60	(60-62)	(58-61)
Tot. stylet	176.5 \pm 2.88						157
	(172-182.5)	(165-166.5)	(176-177)	(166-170)	160	(160-162)	(148-163)
Guide ring	78 \pm 2.06						92
	(75-82)**	(68-83)**	(98-100)	(86-98)	86	(92)	(80-100)
Body diam. mid. body	47 \pm 3.47						47
	(43-53.5)	(39-42)	—*	(47-50)	41	(42-48)	(43-50)
Tail	92.6 \pm 9.92						66
	(79-111.5)	(97.5-104)	(86-88)	(76-81.5)	78.5	(62.5-84.5)	(62.5-68.5)
h	51.6 \pm 8.37						38
	(34.5-64)	(52.5-58.5)	(42-52)	(43.5-44.5)	45	(35-48)	(36.5-41)
h%	55.4 \pm 5.14						57.4
	(42-63)	(51-56)	(49-59)	(54.5-57.7)	57.4	(55.8-56.9)	(55.6-59.6)

* Specimens flattened.

** All females except one of the type population and all females of population 2 have their stylets protruded outside the mouth; this explains the more anterior position of the guide ring compared to population 3 and 4.

is optically empty or with a very fine granular content. Usually two pairs of caudal pores present, a mediolateral pair about halfway along the protoplasmic part of the tail and a subdorsal pair rather close to the anal level. The latter may be lacking or may be accompanied by a second subdorsal pair of pores.

Male : unknown.

Juvenile : only in one population (from Benin) a single juvenile was found, characterized by an elongated tail, and apparently belonging to the third stage, but is in bad condition (L = 1.35 mm; odontostyle = 77 μm ; replacement odontostyle = 88 μm ; tail = 140 μm ;

c' = about 5; hyaline tail portion = 43.5 % of tail length).

LOCALITIES AND HABITATS

— *Population 1* : soil around the roots of *Sorghum* sp., 1 mile north of Ilora, 30 miles north of Ibadan, Oyo province, W. Nigeria (*Rec. et leg.* : F. E. Caveness) : eleven females.

— *Population 2* : soil around roots of teak (*Tectonia grandis*), New Eruwa Village, 39 miles west of Ibadan, Ibadan Province, W. Nigeria (*Rec. et leg.* : F. E. Caveness) : three females.

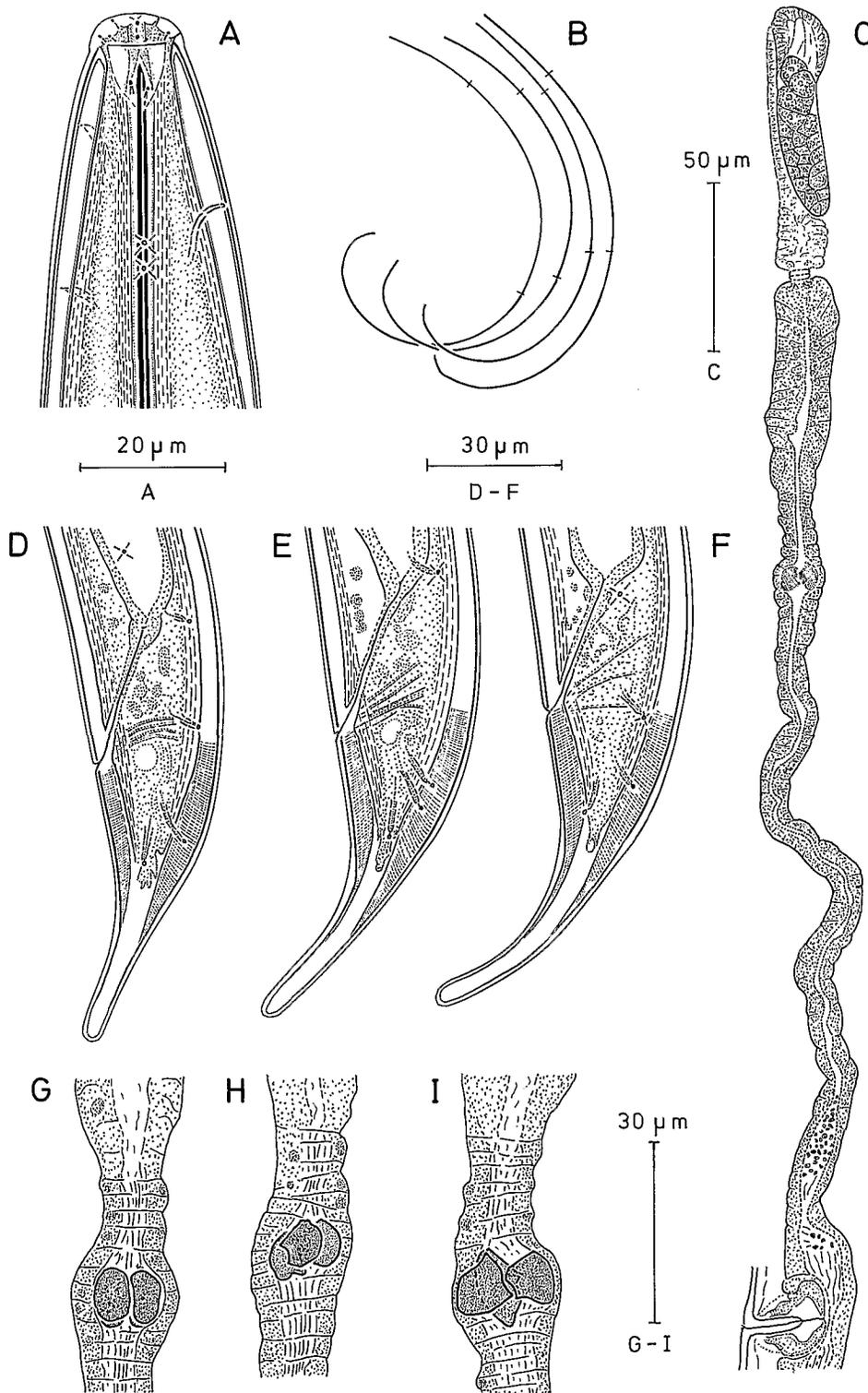


Fig. 4. *Xiphinema fatikae eburnense* subsp. n. — A : Head end; B : Body posture of females; C : Anterior genital branch; D-F : Female tails; G-I : Z-organs.

— *Population 3* : soil around the roots of yam (*Dioscorea rotundata*), 15 miles from Ikoyi, along the road Ikoyi-Igbeti, south of Tewure, W. Nigeria (*Rec. et leg.* : F. E. Caveness) : one female.

— *Population 4* : soil under diseased cotton plants, Sud Bourgou, Benin (*Rec. et leg.* : J.-P. Richard) : two females, one juvenile.

VOUCHER SPECIMENS

Deposited at the Laboratoire des Vers, Muséum national d'Histoire naturelle, Paris.

X. fatikae eburnense subsp. n. (Fig. 4)

MEASUREMENTS

See Table 2.

DESCRIPTION

This subspecies resembles the typical subspecies in most respects but differs in the structure of the uterus which is markedly longer (compare Fig. 3 H-I and 4 C) and contains a differently shaped Z-organ. Except for one female with four sclerotizations in the posterior reproductive branch, all other Z organs contain only three sclerotizations. The latter are roundish to oval with a smooth surface all around or with one or a few pointed extensions towards the lumen; a granular substructure can be recognised in the sclerotization. The wall of the Z-organ is usually thinner and seems to be less muscularised than in the typical subspecies. Another difference exists in the tail where the cylindrical part is more strongly ventrally curved (with one exception — see Fig. 4 D) and where there are two or three pairs of caudal pores : one pair mediolateral and close to the end of the protoplasmic core, a subdorsal pair at a short distance from the mediolateral pair (contrary to the typical subspecies) and a third subdorsal pair with variable position, viz. from close to the other subdorsal pair to just anterior to the anal level (in the latter case there are only two true caudal pores at each side). Finally there is a slightly smaller number of body pores in the neck region : 11-14 (\bar{x} = 12.4; n = 7) lateral; 2-4 (\bar{x} = 3.1; n = 7) dorsal and 8-10 (\bar{x} = 9.0; n = 7) ventral ones.

TYPE POPULATION AND HABITAT

Soil around the roots of yam (*Dioscorea alata* var. Bete), Katiola, Ivory Coast (*Rec. et leg.* : J. J. Smit) : three females.

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OTHER LOCALITIES AND HABITATS

— *Population 2* : soil around the roots of rice (*Oryza sativa*), Lagonou, Ivory Coast : four females (*Rec. et leg.* : R. Fortuner).

TYPE SPECIMENS

Holotype, paratypes, and specimens of population 2, are deposited at the Laboratoire des Vers, Muséum national d'Histoire naturelle, Paris.

DISCUSSION

Xiphinema fatikae fatikae was first recorded by Bos and Loof (1985) around sorghum roots at Fatika, in the northern part of Nigeria. It is recorded here on the same and other hosts in Western Nigeria, and also in Benin, an adjacent to country Nigeria, whereas *X. fatikae eburnense* subsp. n. is recorded from Ivory Coast. Thus *X. fatikae* with two geographically separated subspecies is comparable to *X. coxi* Tarjan, 1964 as described by Sturhan (1985). The distance between the populations of the two subspecies is far less in the case described here than in *X. coxi*, but the differences recorded are of the same degree. *X. fatikae* is apparently a parthenogenetic species which creates an additional problem in assigning taxonomic status to different populations. Further and extensive sampling will be necessary to determine whether or not intermediate forms exist. As long as both forms have not been found together without intermediates, we feel that subspecies status is to be preferred.

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