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A new species of *Actinca* (Actinolaimidae, Dorylaimida) from the Ivory Coast and a redescription of *A. papillata* (W. SCHNEIDER, 1935)

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Abstract

A new species of *Actinca* from Ivory Coast, *A. heynsi* n. sp., is described and illustrated. It is characterized by short size, very high and narrow lip region, long, thin and flexible odontostyle, 14 longitudinal ridges on the cuticle, long rectum, rather short conical female tail. A redescription of *A. papillata* (W. SCHNEIDER, 1935) is given on the basis of original material and a lectotype of the species is designated.
Key-words : taxonomy, description, lectotype, Ivory Coast.

Résumé

A. heynsi n. sp., une nouvelle espèce du genre *Actinca* de la Côte d'Ivoire est décrite et figurée. L'espèce est caractérisée par : sa petite taille, une région labiale très haute et étroite, un odontostyle long, mince et flexible, 14 crêtes longitudinales sur la cuticule, un long rectum et, chez la femelle, une queue assez courte et conique. Une redescription de *A. papillata* (W. SCHNEIDER, 1935), basée sur le matériel original, est donnée et un lectotype de l'espèce est désigné.
Mots-clefs : taxonomie, description, lectotype, Côte d'Ivoire.

Introduction

During a survey of some nematodes collected in Ivory Coast we came upon a new species of *Actinca*, which is here described below as *Actinca heynsi* n. sp. in honour of Prof. J. HEYNS from South Africa. Amongst others the new species was compared with *A. papillata* (W. SCHNEIDER, 1935) ANDRÀSSY, 1964, found in the same area of Africa. Through the courtesy of Dr. F. SCHIEMER of the University of Vienna, Austria, we were able to study what was left of SCHNEIDER's original material. On the basis of these syntype specimens a redescription of the species is given. Among the specimens in our possession a lectotype was selected, since the author had not designated a holotype in the original description. The contribution of both authors being equivalent, the names are listed in alphabetical order.

Material and methods

The specimens of *A. heynsi* n. sp. (2 males, 5 females and 2 juveniles) were processed according to the usual procedures and mounted in dehydrated glycerin. Some specimens (1 male, 1 female and 1 juvenile) were processed for observation under SEM. The type specimens of *A. papillata* belong to only two of the six populations originally observed by SCHNEIDER, namely those from Banfora b (5 females, 4 males and 1 juvenile) and from Man Km 21 a (6 females). They have been remounted and are still in excellent condition. Some specimens (1 male, 2 females) were processes for SEM.

Descriptions

Actinca heynsi n. sp.
(Figs. 1-3)

Dimensions : see Table I.

Body straight or slightly curved ventrad, more markedly so in the posterior region of the male ; the head is always slightly bent dorsad (Fig. 1 A, E). Cuticle with fine transverse striation and with prominent longitudinal ridges which number about 14 in mid-body (Fig. 2 F) ; they start at level of the fixed guiding ring and continue all over the body, till close to the tail end. Cuticle thickness 3-7 μm depending on the body region and on the specimen. Body pores small, opening on the ridges (Fig. 2G). In the anterior part of the neck region some conspicuous papillae are present, numbering 5-6 ventrally and 3-4 dorsally (Fig. 1D). Behind these papillae there are 2-3 ventral pores and about 11 lateral pores in the neck region.

Lip region very high (7-8 μm in the adults), narrowing anteriorly, shaped ad a truncated cone ; it is continuous with the body contour and also transversely striated (Fig. 2A, B). The diameter of the lip region at its anterior end is 1/9 to 1/10 of the body diameter at the base of pharynx and about 1/2 of its own height. The six outer labial papillae are always very evident and situated close to the base of the lip region (Fig. 2A, B). The six inner labial and four cephalic papillae are minute and situated at the anterior margin of the lip

TABLE I - Measurements of *Actinca heynsi* n. sp. and *Actinca papillata*

	Actinca heynsi n. sp.				*Actinca papillata*		
	Holotype ♀	Paratype ♂♂ (n=2)	Paratype ♀♀ (n=4)	Banfora Lectotype ♀	Banfora Paralect. ♀♀ (n=1)	Banfora Paralect. ♂♂ (n=4)	Man ♀♀ (n=5)
L (mm)	1.16	1.19-1.20	1.13-1.28	2.18	2.33	2.02-2.25	1.41-2.00
a	31	31-38	30-35	39	42	40-49	29-39
b	3.1	3.0-3.3	3.2-3.3	4.5	4.8	3.7-5.3	3.3-4.5
c	20	38	19-25	24	21	58-76	14-18
c'	2.7	1.0-1.3	3.0-3.1	3.6	3.8	0.8-1.0	4.1-4.6
V/VD	50	50-53	47-50	42	43	44-51	43-49
G1	15	6	10-12	9	17	8-19	11-15
G2	21	13	14-17	8	17	7-21	11-14
Phar. (μm)	381	375-380	351-399	459	503	453-515	420-499
LW (ant. end., μm)	3.5	4.0-4.5	4.5-5.0	6	?	6-7	4.5-6.5
LH (μm)	7.5	8	7.5-9	5	?	4-5	4-6.5
Phar. base/LW	9	10	9-10	9	?	7-9	6-10.5
Fix. r. - ant. end (μm)	16	18-21	16-18	14	15	11-13	13-15
Odontostyle (μm)	29	28	27-28	24	24	23-25	23-24
Odontost./LW	6	6.4-7.3	5.5-7.5	4.1	?	3.7-4.2	3.5-5
Amphid open. (μm)	4	6	4.5-5	7	?	7-9	6-8
Prerectum (μm)	96	125-145	75-118	77	130	77-130	90-142
Prer./ABW	4	5-6	4-6	2.6	4.4	2.5-4.4	3.5-5
Rectum (μm)	49	-	38-59	47	53	-	38-53
Rectum/ABW	2	-	2-3	1.6	1.8	-	1.3-2
Tail (μm)	68	25-30	58-65	106	112	30-33	111-136
Spicula (μm)	-	47-52	-	-	-	56-65	-
Lat. g. p. (μm)	-	9.5-12.5	-	-	-	9-12	-
Sperm (μm)	2x6	-	2-3x6-7	-	-	1.5-2x7.5-8	-
Supplements	-	5+5 (+2)	-	-	-	8-9+8-9	-
Cuticle (μm)	3	3-7	3-6	4-5	4-5	3-4	3-7

region, i.e. on the hexagon (see below) (Fig. 2C). Amphids with cup-shaped fovea ; the oval aperture is 4-5 μm wide in females (Fig. 2A) and 6 μm in males. The fusus is not visible.

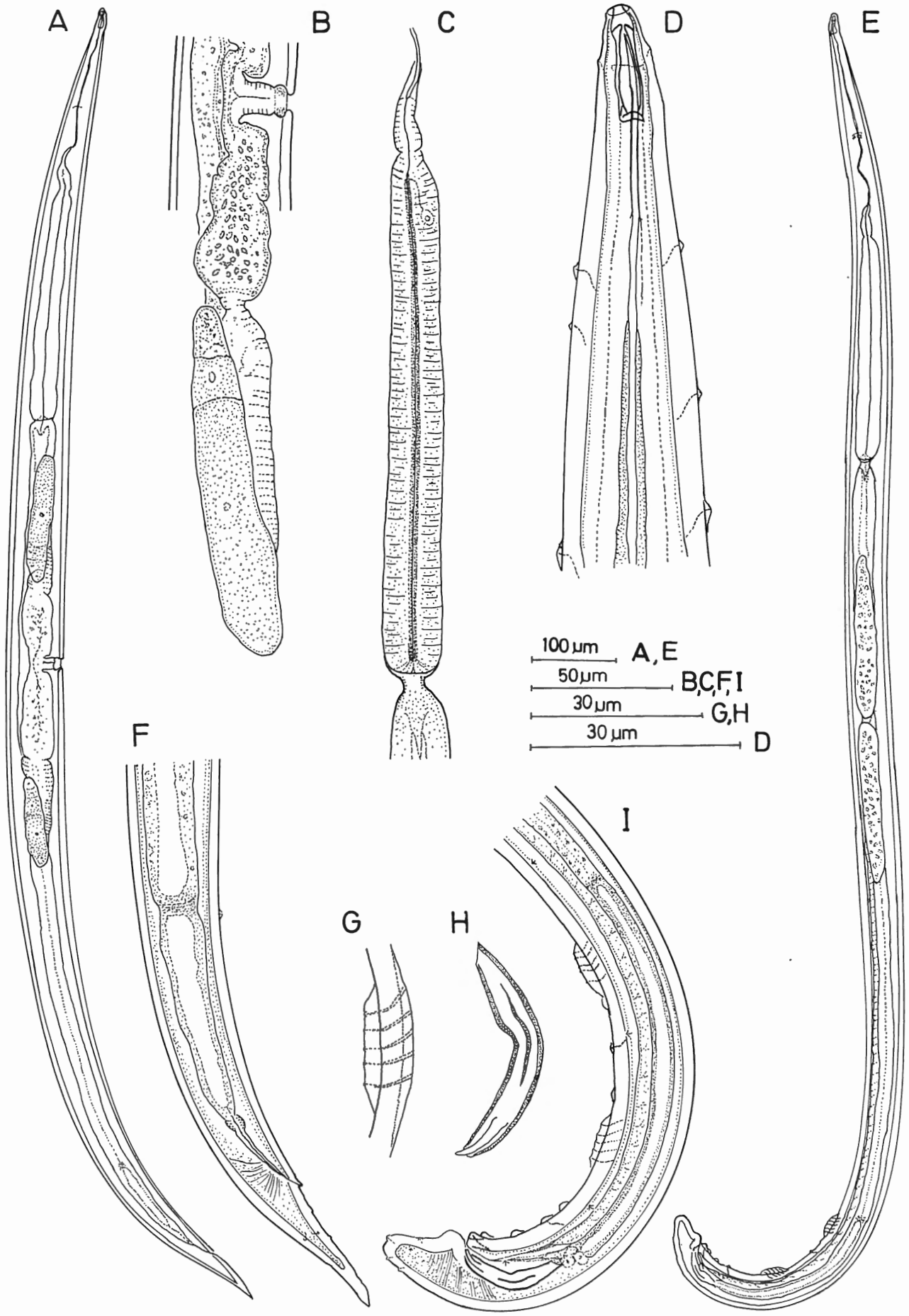
The round oral aperture is surrounded by an inner sclerotized ring connected with 21-22 radial sclerotized prongs which are surrounded by a slerotized hexagon (Fig. 2A, C). Four large, forward pointing, onchia are present in the cheilostoma. The mouth cavity is relatively very long : the fixed guiding ring is located 16-18 μm from anterior end in females and 18-21 μm in males. The odontostyle, very slender and delicate, is rather sinuous ; its length equals 7-8 times the width of the anterior body end ; the aperture occupies 1/4 to 1/3 of the length. The odontophore is not demarcated from the remainder of the pharyngeal lining. The anterior part of the pharynx is a narrow, non muscular tube. The pharynx enlarges posteriorly in two steps : at 40-41% and at 46-49% of its length, attaining its full width at 51-53%. The enlarged portion contains the 5 pharyngeal glands. In most specimens the gland nuclei are hardly visible, especially the reduced anterior ventrosublateral ones. The distance DO-DN is 40-51 μm. The $S_{1}0$ lie about 45-47 μm apart. Locations (n=2):

DO=51-53% S_{10_1}=73-77% $S_{2}N$=86-87%
DN=55-56% S_{10_2}=77-80% $S_{2}0$=88% K'=85-87

A thin sheath surrounds the pharynx base. Pharyngo-intestinal junction elongate-conoid. Length of prerectum 125-145 μm or 5-6 anal body widths in males, extending anterior of the proximal fascicle of supplements ; 75-118 μm (4-6 anal body widths) in females. Rectum 2-3 anal body widths long in females, very short in males. Anal lips in females (Fig. 2E) and lips of the cloacal aperture in males (Fig. 3A) protruding, the anterior one strongly convex, the posterior one rounded and with a wrinkled cuticle.

Females didelphic, amphidelphic : the posterior branch always longer than the anterior one. Uteri often filled with sperm, oval, 2-3 x 6-7 μm large. Vulva longitudinal with two lateral protruding lips (Fig. 2D) ; vagina extending about halfway across the body. Vulva-vagina junction weakly sclerotized.

Fig. 1 - Actinca heynsi *n. sp. A : Overall view of female. B : Posterior branch of female reproductive system. C : Enlarged part of pharynx. D : Lateral view of female head. E : Overall view of male. F : Posterior body region of female. G : Posterior fascicle of male. H : Left spicule and lateral guiding piece. I : Posterior body region of male.*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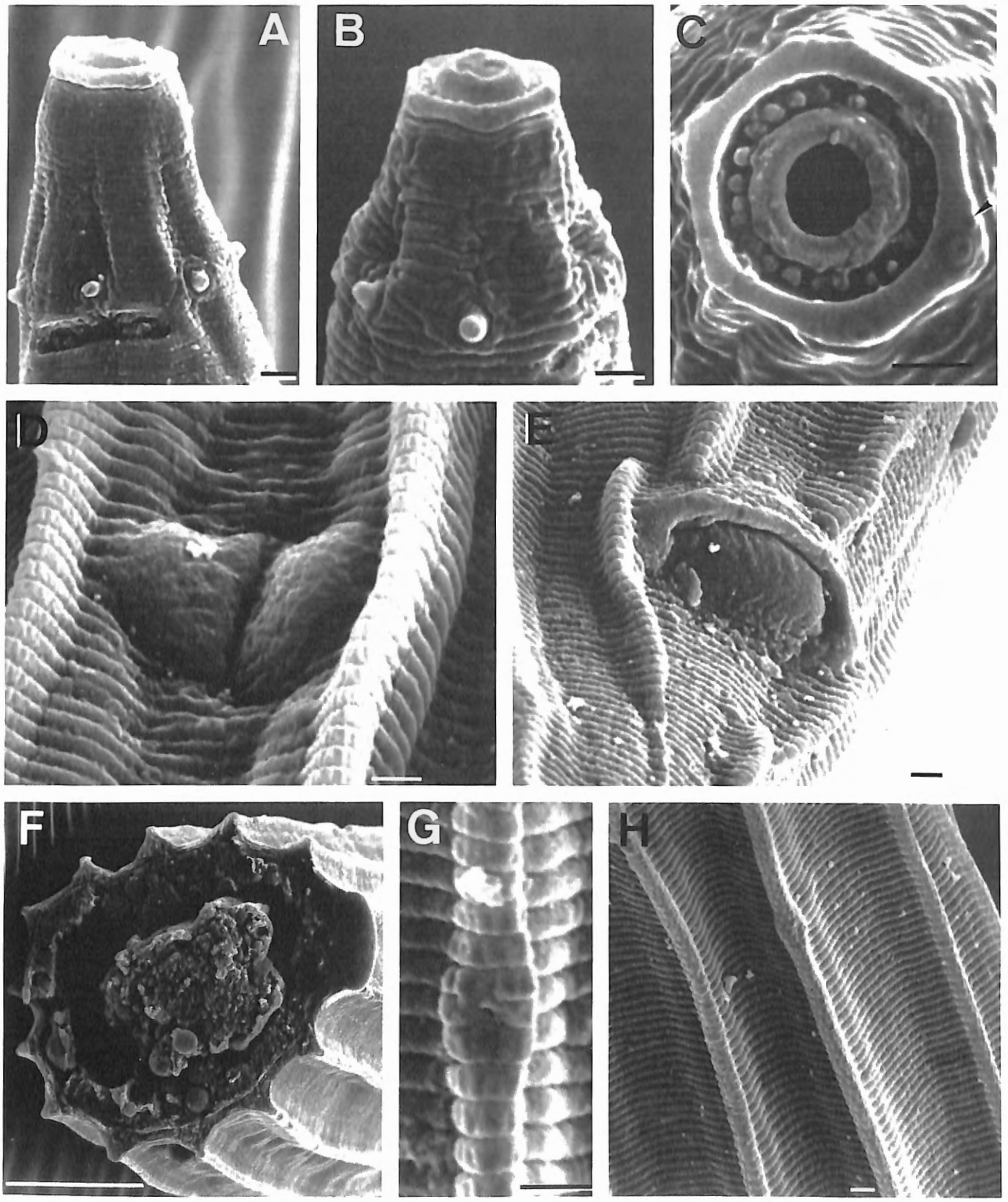
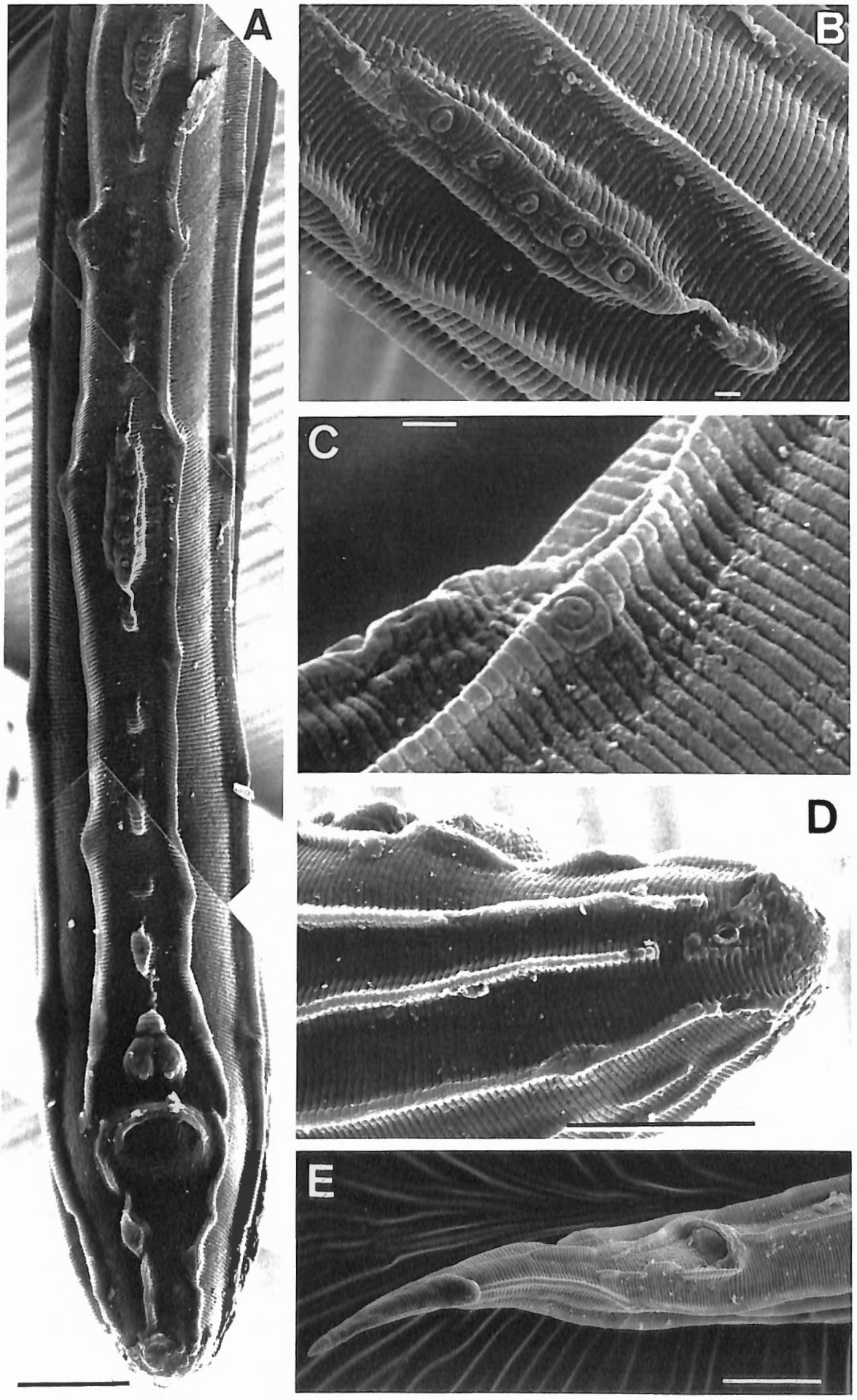


Fig. 2 - Actinca heynsi *n. sp. A : Head end of female in sublateral view. B : Head end of juvenile in submedian view. C : En face view of juvenile (arrowhead indicates cephalic papilla). D : Vulva in ventral view. E : Anus, female. F : Cross section at mid-body of juvenile. G : Body pore. H : Cuticle, detail with ridges and transverse striae.*
Scale bar equals 10 μm in F, 1 μm in all others.

Fig. 3 - Actinca heynsi *n. sp. A : Posterior body region of male in ventral view. B : Posterior fascicle in ventral view. C : Subventral papilla alongside posterior fascicle. D : Male tail in lateral view. E : Female tail in subventral view. Scale bar equals 1 μm in B, C and 10 μm in A, D, E.*


A
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E

Males diorchic, with well developed testes. Apart from the adanal pair, there are 10-12 supplements arranged in two fascicles of 5 (Figs. 1E, I ; 3A, B) ; in one male there is a supplement between the two fascicles and a further one behind the posterior fascicle. In both specimens between the adanal pair of papillae and the posterior fascicle and between the two fascicles there are also some papilliform prominences of the cuticle without innervation. In the region of the copulatory muscles there are 4-5 pairs of subventral papillae (Figs. 1I ; 3C), one of which is caudal, opening on the ridges. No "Kopulationshöcker". Spicules rather slender, ventrally arcuate, 47-52 μm long ; lateral guiding pieces 9.5-12.5 μm long.
Female tail elongate conoid (Figs. 1F ; 3E), about 3 times as long as the anal body width, gradually narrowing till the finger-like pointed tip, with two pairs of caudal pores. Male tail dorsally convex conoid with blunt terminus, about as long as the anal body width or slightly more (Figs. 1I ; 3D) ; with 7 pairs of caudal pores in one specimen (Fig. 1I).

Diagnosis

Actinca heynsi n. sp. is a rather short species, characterized by a very high and narrow lip region, a very long mouth cavity, a thin, flexible odontostyle, 7-8 times as long as anterior body end is wide, by the presence of 14 very prominent longitudinal cuticular ridges, by a long rectum and by a rather short female tail. For the small size it comes close to *A. tenuiaculeata* (KREIS, 1924) ANDRÀSSY, 1964 and to *A. memorabilis* ANDRÀSSY, 1968, but it differs from both in the lower number of cuticular ridges, in the higher and narrower lip region, in the longer and flexible odontostyle and in the shorter female tail. For the low number of cuticular ridges it comes close to *A. papillata* (W. SCHNEIDER, 1935) ANDRÀSSY, 1964, but the new species differs from it in all the other above-mentioned characters and because it is much shorter.

Type locality and habitat

Very humid soil with thick cover of decaying leaves in the arboretum, valley of the Banco, Ivory Coast. Collected 13.08.1979 by L. SAMSOEN.

Type specimens

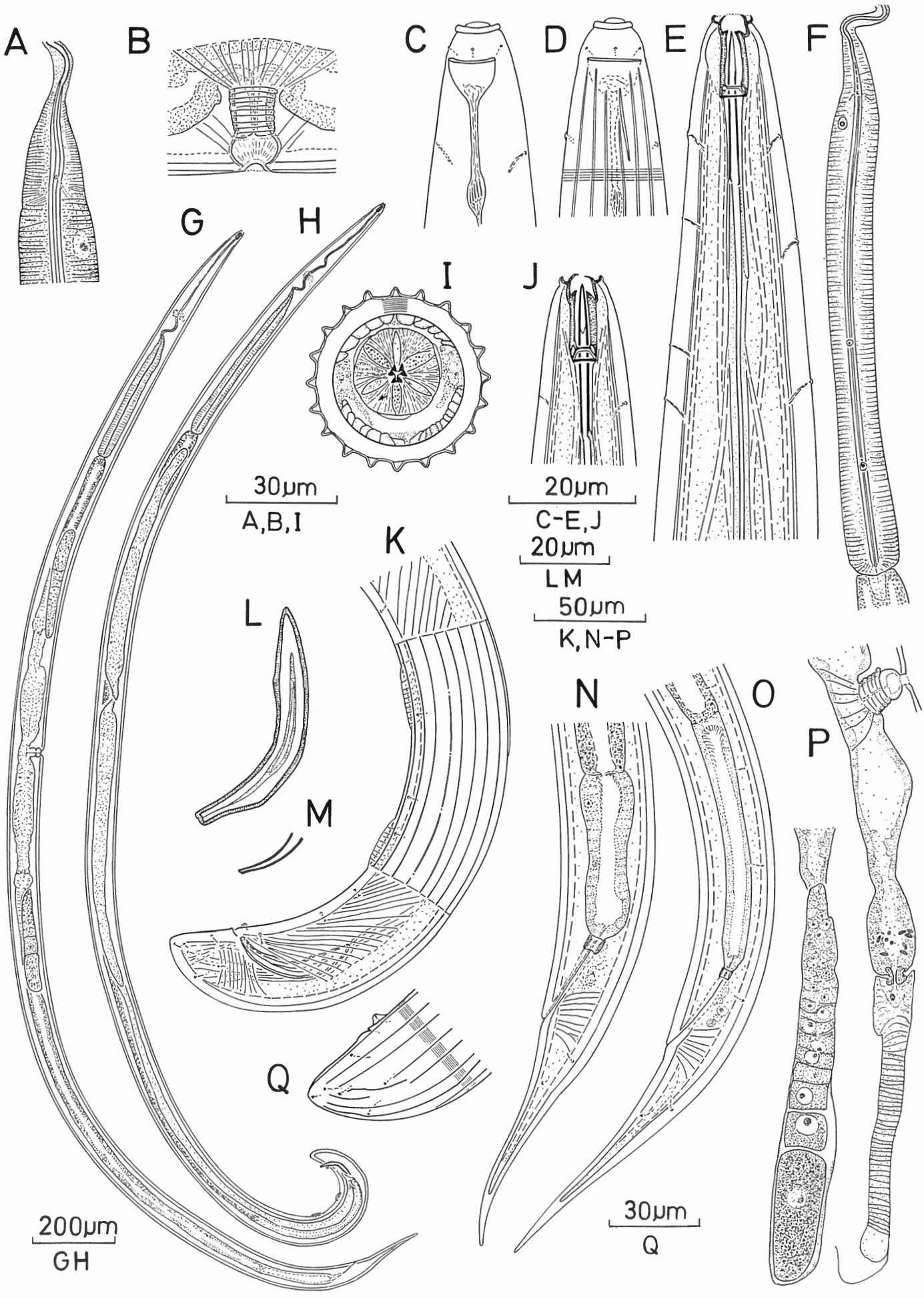
The holotype, female (slide n° 3258), and 3 paratypes (1 male, 1 female and 1 juvenile) are deposited in the Collection of the Instituut voor Dierkunde, Gent, Belgium ; 2 paratype females are deposited in the Collection of the Dipartimento di Biologia Animale, University of Catania, Italy.

Actinca papillata (SCHNEIDER, 1935) ANDRÀSSY, 1964 (Figs. 4-5)

Dimensions : see Table I

Body ventrally curved to C-shaped in the population from Banfora or dorsally as well as ventrally curved in the population from Man. Posterior body region of males always markedly curved ventrad (Fig. 4G, H). Cuticle with fine transverse striations and with about twenty longitudinal ridges (Figs. 4I ; 5B, C) starting close behind the lip region and extending till close to tail end. Cuticle composed of several layers (Figs. 4I ; 5D), thickness 3-7 μm depending on body region and on specimens. Body pores best visible in the specimens from Man, in neck region numbering (n=4) : 4 dorsal pores, 10-11 ventral pores and 11-13 lateral pores ; latter ones starting mediolateral and between ridges, but soon either laterodorsal or lateroventral and on ridges.
Lip region 4-6.5 μm high, with rounded conoid sides and truncated end, continuous with body contour. Anterior papilliform sensilla arranged in two circlets of 10+6, with only the six outer labial papillae visible under the light microscope and situated in the posterior part of the lip region (Fig.s 4C, D ; 5A). Amphids with cup-shaped fovea and slit-like aperture 6-8 μm wide in females and 7-9 μm in males. Fusus 20-22 μm behind amphid aperture (Fig. 4C, D).
The round oral aperture is surrounded by an inner sclerotized ring connected with sclerotized radial prongs which are surrounded by a sclerotized hexagon bearing the six inner labial and four cephalic papillae as in *A. heynsi* n. sp. Cheilostome with four long forward-pointing onchia, whose bases are interconnected by a sclerotized ring slightly anterior to the fixed guiding ring, which is located 13-15 μm (females) or 11-13 μm (males) from the anterior body end (Fig. 4E , J).
Odontostyle long and slender, its length equals 3.4-4.0 times the width of the anterior body end (= width of hexagon) ; the aperture occupies 2/7-1/4 of the length. Odontophore not demarcated from remainder of pharyngeal lining. Anterior part of pharynx a narrow, non-muscular sinuous tube. The pharynx becomes muscular and enlarges posteriorly in two steps : at

Fig. 4 - Actinca papillata *(W. Schneider, 1935) A : Anterior part of muscular pharynx. B : Vulva-vagina region. C : Head end of lectotype female in surface view (ridges omitted). D : Head end of male in surface view. E : Anterior body region in median view (same specimen). F : Enlarged, muscular portion of pharynx. G : Overall view of female. H : Overall view of male. I : Cross section of posterior part of pharynx. J : Head end of lectotype in median view. K : Posterior body region of male. L : Left spicule. M : Left lateral guiding piece. N : Posterior body region of lectotype. O : Same, female from Man. P : Posterior genital branch of female. Q : Male tail in surface view.*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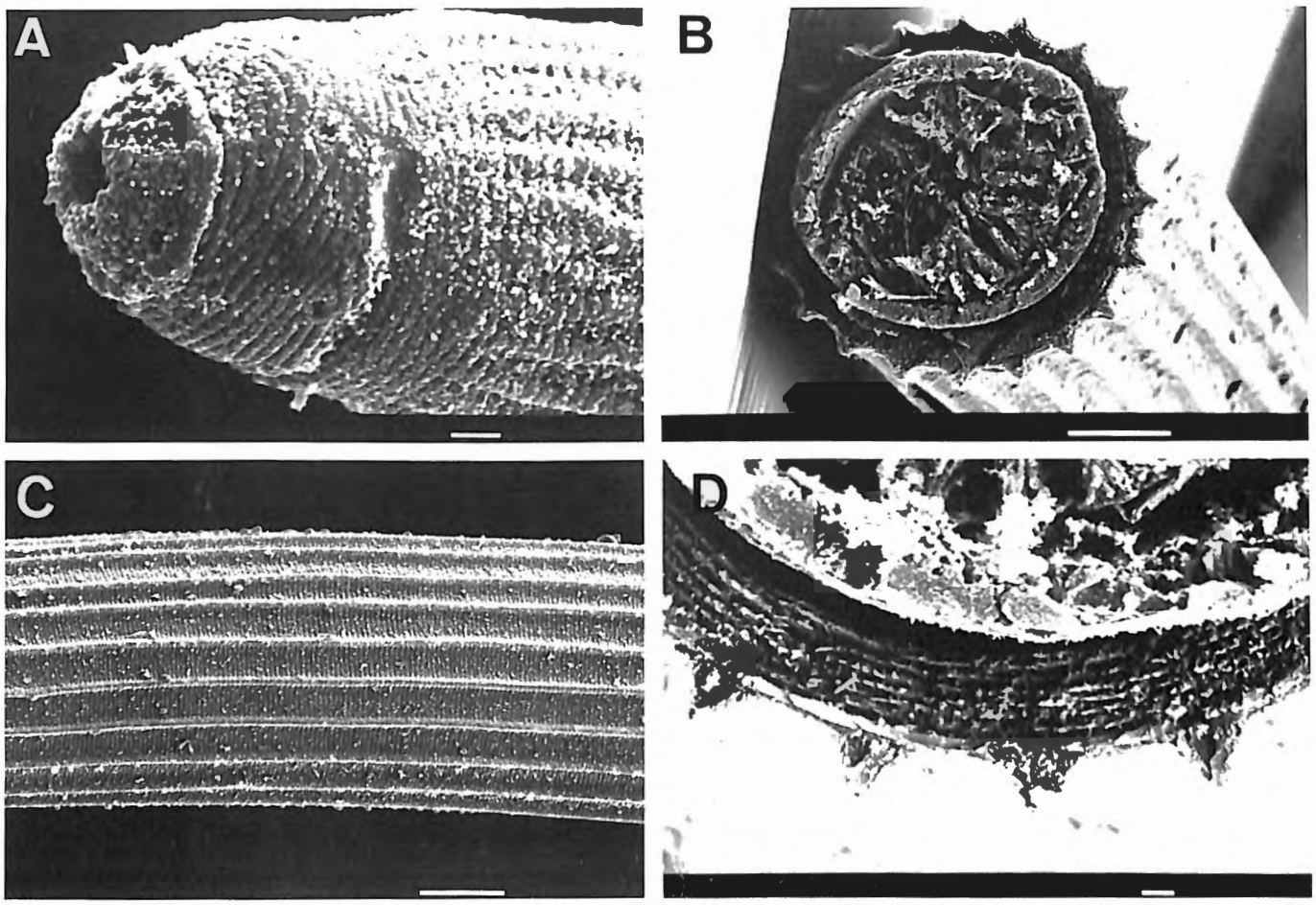

Fig. 5 - Actinca papillata *(W. Schneider, 1935) female A : Head end. B : Cross section. C : Cuticle at mid-body. D : Detail of cuticle in cross section. Scale bar equals 10 μm in B, C and 1 μm in A, D.*

41-44% and at 47-52% of its length ; attaining its full width at 51-55%. In most specimens nuclei and outlets of the pharyngeal glands are obscure, except for the dorsal outlet and nucleus, which are located respectively 23-27 μm and 40-45 μm behind the beginning of the muscular part of the pharynx (DO-DN=29-37 μm ; Fig. 4A, F). Pharyngo-intestinal junction conoid. Prerectum variable in length (Fig. 4N, 0), in males extending anterior to the copulatory muscles.

Females didelphic, amphidelphic with equally developed branches. Uterus 2-2.5 body widths long ; oviduct of roughly the same length as uterus, with short, wider and long, narrow portion, the latter composed of 36-47 disc-like cells (Fig. 4P). Vulva longitudinal (Fig. 4B). Vagina extending about halfway the body diameter.

Males diorchic, with well developed testes containing oval to elliptical spermatozoa 7.5-8 μm long and 1.5-2 μm wide. Apart from the adanal pair there are 16-17 supplements arranged in two fascicles of 8-9 (Fig. 4K). In the region of the copulatory muscles there are 9 subventral papillae at each body side. Some males clearly show six ejaculatory glands, but rectal glands are obscure. No "Kopulationshöcker". Spicules dorylaimod, with narrowed distal part, ventrally arcuate. Lateral guiding pieces also ventrally curved, with wider proximal and narrow distal portion (Fig. 4L, M).

Female tail elongate conoid (Fig. 4N, 0), about 4-5 times as long as the anal body width, tapering to an acute or subacute tip, with two caudal pores at each side and sometimes an additional adanal one. Male tail short, dorsally convex-conoid with bluntly rounded terminus, about as long as the anal body width, with six pairs of caudal pores (Fig. 4K, Q).

Diagnosis

Actinca papillata is a medium-sized species with twenty cuticular ridges and therefore comparable to *A. heynsi* n. sp. in this respect. However, it differs from that species in shape of lip region, shape and length of odontostyle, less prominent cuticular ridges, longer body and longer tail.

Type locality and habitat

Moss at a waterfall on the Comoë river, Banfora, Ivory Coast. Collected by Dr. P.A. CHAPPUIS, 24 january 1931.

Other locality and habitat

Liverworts underneath lowest waterfall of a mountain rivulet along the road to Touba, 21 km from Man, Ivory Coast. Collected by Dr. P.A. CHAPPUIS, 3 march 1931.

Type specimens

Lectotype female and one male paralectotype on slide nº 3259, one male and one (bad) female paralectotype and two females from Man in the Nematode Collection of the Instituut voor Dierkunde, Gent, Belgium ; one male and one female paralectotype plus one female from Man in the W. SCHNEIDER Collection at the Limnologische Lehrkanzel, University of Vienna, Austria. One female from Man deposited in the Collection of the Dipartimento di Biologia Animale, University of Catania, Italy.

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