

***Tylencholaimus gallaicus* sp. n. (Dorylaimida, Tylencholaimidae) from Galizia, NW Iberian Peninsula**

Inés Seijas*, María Á. Hernández**, Joaquín Abolafia*** and Reyes Peña-Santiago***

*Departamento de Biología Animal, Facultad de Biología, Universidad de Santiago de Compostela, Spain,

**Departamento de Zoología y Ecología, Facultad de Ciencias, Universidad de Navarra, 31080-Pamplona, Navarra, Spain,

***Departamento de Biología Animal, Biología Vegetal y Ecología, Universidad de Jaén, Campus "Las Lagunillas" s/n, Edificio B3, 23071-Jaén, Spain, e-mail: abolafia@ujaen.es

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Summary. A new dorylaimid species, *Tylencholaimus gallaicus* sp. n., is described and illustrated, including LM and SEM pictures, from NW Iberian Peninsula. It is characterized by its very small body ($L = 0.30\text{--}0.46$), lip region rather rounded and lacking perioral disc, odontostyle 5–6 μm long or shorter than lip region width, anterior region of the pharynx weakly muscular and extending abruptly, pharyngeal expansion occupying one-third to two-fifths of total neck length, female genital system monodelphic-prodelphic, vulva posterior ($V=60\text{--}67$), tail conical and slightly ventrad curved (20–28 μm , $c=12\text{--}19$, $c'=1.6\text{--}2.4$), spicules 18 μm long and four ventromedian supplements. The new species is very close to *T. minutus* Vinciguerra, 1986, but it can be separated from this in having rounded shape of lip region (vs typical cap-like) lacking perioral differentiation (vs inner region of lips distinctly separated from the rest, with disc-like appearance under LM), more anterior vulva (vs $V=67\text{--}73$), longer tail (vs $c=19\text{--}27$), and four ventromedian supplements (vs two).

Key words: Iberian Peninsula, morphology, new species, taxonomy, *Tylencholaimus*.

Free-living dorylaimid nematodes from Galizia (NW Iberian Peninsula) are deficiently known because no monographic work is currently available on the matter, but only records obtained as results of general surveys carried out by Gadea (1952, 1955) in the fifties of the past century. During a nematological study (Seijas, 2004), focused on soil fauna associated with apple orchards and oak forests in the region, several species of dorylaims were collected and identified, among them a new one belonging to the genus *Tylencholaimus* De Man, 1876, which is here described.

MATERIAL AND METHODS

Nematodes were extracted from soil samples by centrifugation according to the method described by De Grisse (1969), later modified by Nombela & Bello (1983). Then the animals were mounted in anhydrous glycerin following Seinhorst's technique (1959). Drawings were made using an Olympus BH-2 light microscope provided with differential interference contrast (DIC); microphotographs

were taken with a Nikon Eclipse 80i light microscopes (also with DIC) having attached a Nikon Digital Sight DS-U1 camera. For SEM studies fixed specimens were hydrated (one day), and then dehydrated in a graded ethanol series (25, 30, 50, 70, 95, 100%) and finally in acetone (100%), critical point dried, coated with gold, and observed with a JEOL JSM-5800 microscope operating at 4kV.

DESCRIPTION

***Tylencholaimus gallaicus* sp. n. (Figs. 1–3)**

Measurements: See Table 1.

Female. Moderately slender nematodes of very small size, 0.30–0.46 mm long. Body cylindrical, tapering towards both ends but more so towards the posterior extreme. Habitus after fixation ventrad curved, to C-shaped, in particular at the posterior body region. Outer cuticle bearing fine transverse striations which usually are more visible at the posterior body region; inner cuticle layer with irregular outline and loose from the outer

one; radial refractive elements present but being scarce and little distinguishable. Lateral chord occupying about one-third of mid-body diameter, its margin somewhat irregular. Lateral pores obscure. Lip region rather rounded under LM [however, SEM available pictures (Fig. 3) show a somewhat different aspect, certainly due to collapse of the material]; it is offset by constriction, about twice as wide as high, and about one-third of body diameter at neck base. Lips mostly amalgamated, with their inner region hardly projecting and scarcely differentiated from the rest of lip region, not forming a disc-like structure. Labial and cephalic papillae not protruding, each bearing a pore (visible under SEM). Amphid fovea cup-like, opening at level of cephalic constriction and occupying about one-third of lip region width. Cheilostom a truncate cone, lacking any particular differentiation. Odontostyle typical of the genus, relatively small, scarcely shorter than lip region diameter; aperture occupying about one-fourth of total length. Odontophore rod-like and bearing very small basal thickenings; it is scarcely longer than odontostyle. Guiding ring single. Pharynx consisting of a

slender and weakly muscular anterior region which extends abruptly; basal expansion occupying one-third to two-fifths of total neck length, almost cylindrical, and 2.9-3.6 times as long as the corresponding body diameter. Pharyngeal gland nuclei and outlets obscure, excepting DN which is quite near the pharyngeal expansion. Cardia rounded conoid, and enveloped by intestinal tissue. Female genital system monodelphic-prodelphic. Ovary well developed, but not reaching the vulva level. Genital tract very poorly differentiated, even lacking a distinct sphincter. Posterior genital branch completely absent. Vagina visibly bent forwards, extending inwards to half of mid-body diameter; its regions poorly developed too: *pars proximalis* with straight walls, *pars refringens* vestigial, and *pars distalis* relatively long. Vulva a transverse slit. Pre-rectum 2.4-4.9 times the anal body diameter long; its junction to intestine guarded by three cells. Tail conical, slightly ventrad curved, with finely rounded tip. Caudal pores two pairs, one subventral and another subdorsal, both at the middle of the tail, in some specimens difficult to observe.

Male. Apparently rare, and the females do not

Table 1. Measurements of *Tylencholaimus gallaicus* sp. n. (in μm except *L* en mm).

n	Holotype ♀	Paratypes	
		14♀♀	♂
L	0.40	0.38±0.04 (0.30-0.46)	0.43
a	23.4	22.3±2.4 (18.9-28.3)	22.7
b	3.1	2.7±0.2 (2.4-3.2)	2.8
c	14.7	15.2±2.3 (12.3-19.0)	17.3
c'	2.3	2.1±0.3 (1.6-2.4)	1.6
V	62.2	63.7±2.1 (60.3-66.7)	—
Lip region width	6	6.5±0.5 (6-7)	8
Odontostyle length	5	5.7±0.5 (5-6)	5
Odontophore length	5	6.0±0.7 (5-7)	6
Neck length	130	139.4±16.0 (117-180)	151
Pharyngeal expansion length	52	53.5±6.0 (47-69)	56
Body diameter at neck base	16	16.9±1.1 (15-19)	18
mid-body	17	16.9±1.1 (16-19)	19
anus	12	12.1±1.1 (11-14)	16
Prerectum length	54	43.2±11.3 (30-59)	?
Rectum length	9	10.7±1.7 (8-14)	?
Tail length	27	24.9±2.5 (20-28)	25
Spicules	—	—	18
Ventromedian supplements	—	—	4

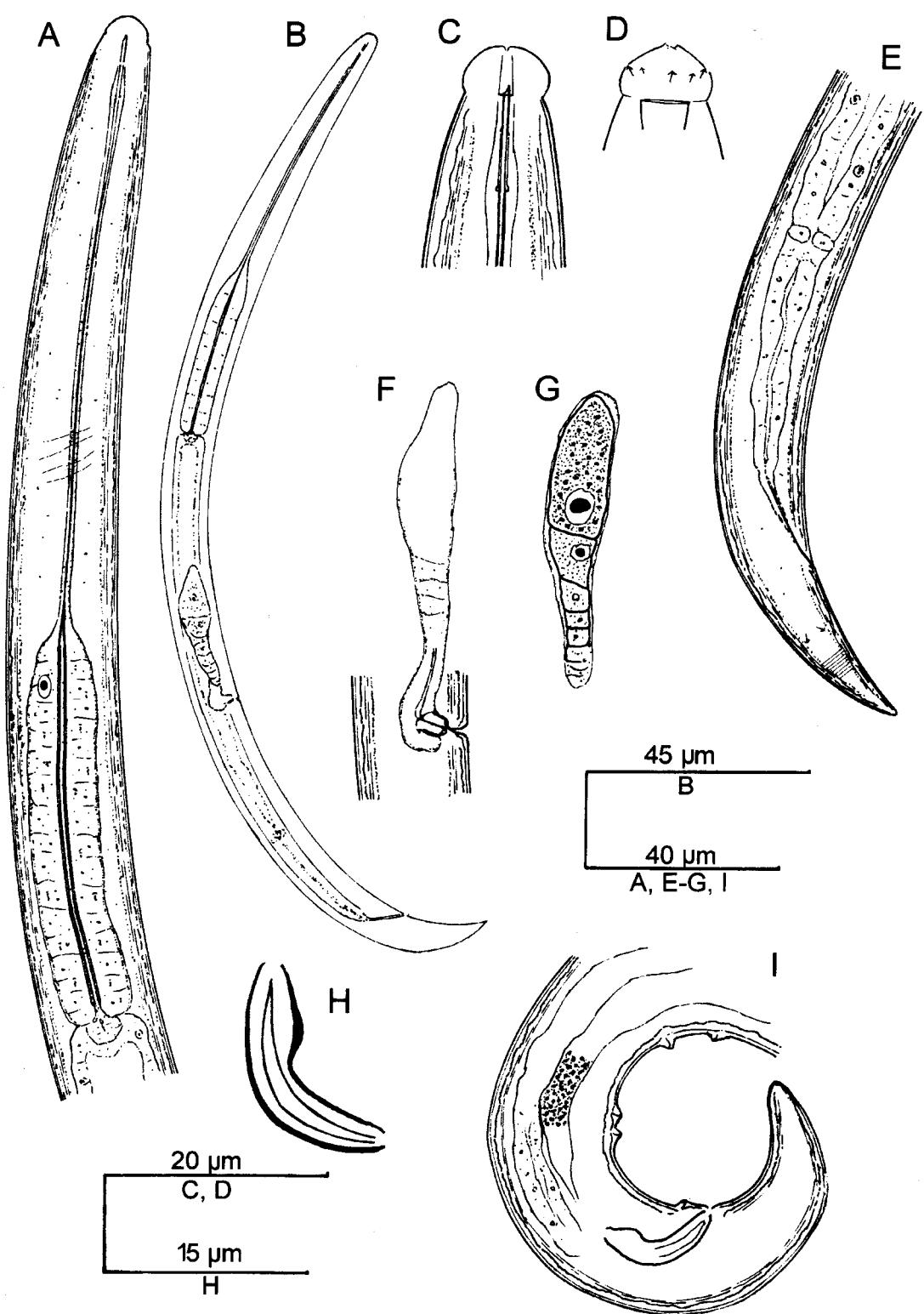


Fig. 1. *Tylencholaimus gallaicus* sp. n. A: Neck region; B: Entire female; C: Lip region in median view; D: Lip region in lateral surface view; E: Female posterior body region; F,G: Female genital system; H: Spicule; I: Male posterior body region.

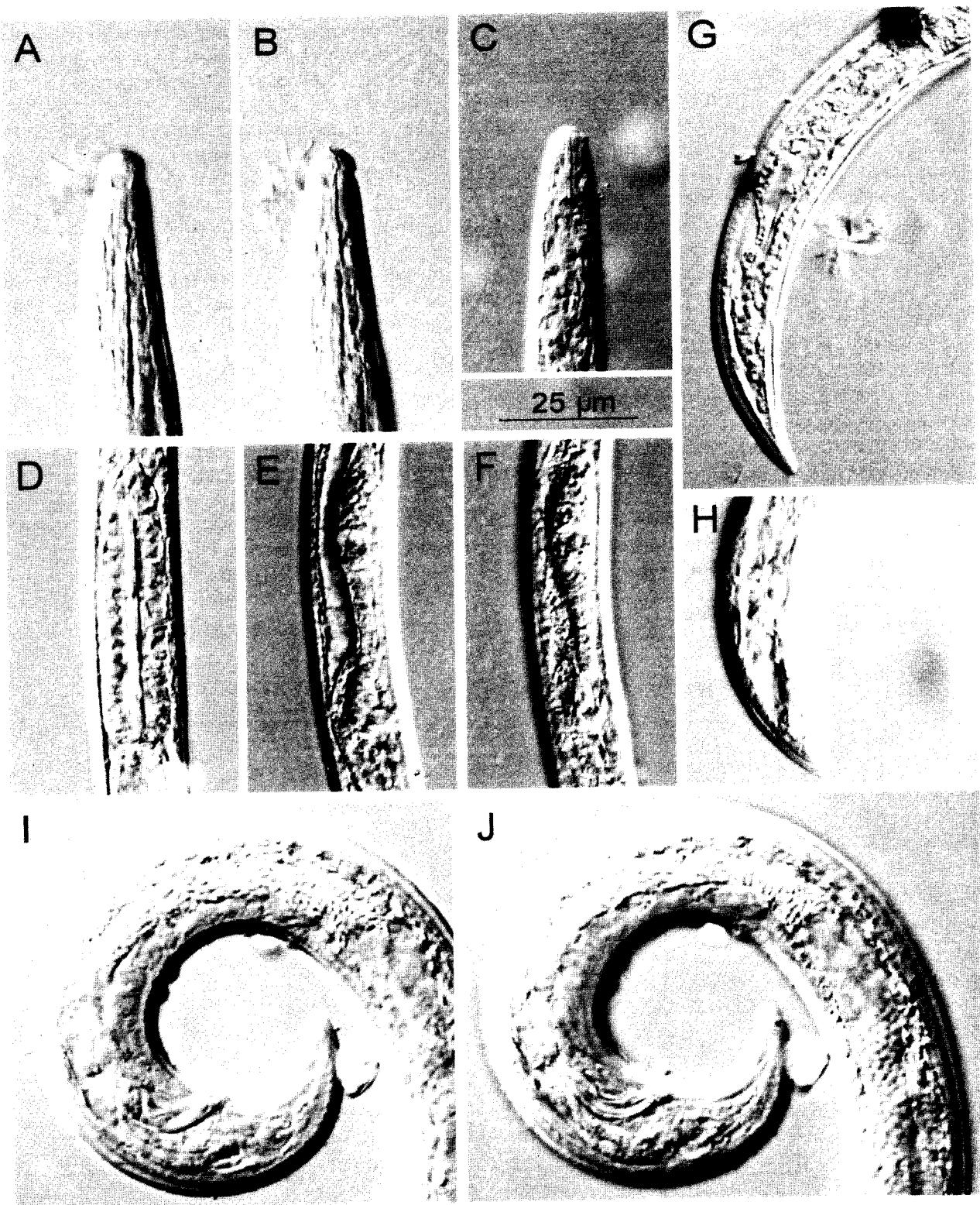


Fig. 2. *Tylencholaimus gallaicus* sp. n. (LM): A: Anterior region in lateral surface view; B: Same in median view; D: Pharyngeal expansion; E,F: Female genital system; G,H: Male posterior body region; I: Female posterior body region; *Tylencholaimus minutus* Vinciguerra, 1986: C: Anterior region in median view; J: Female posterior body region.

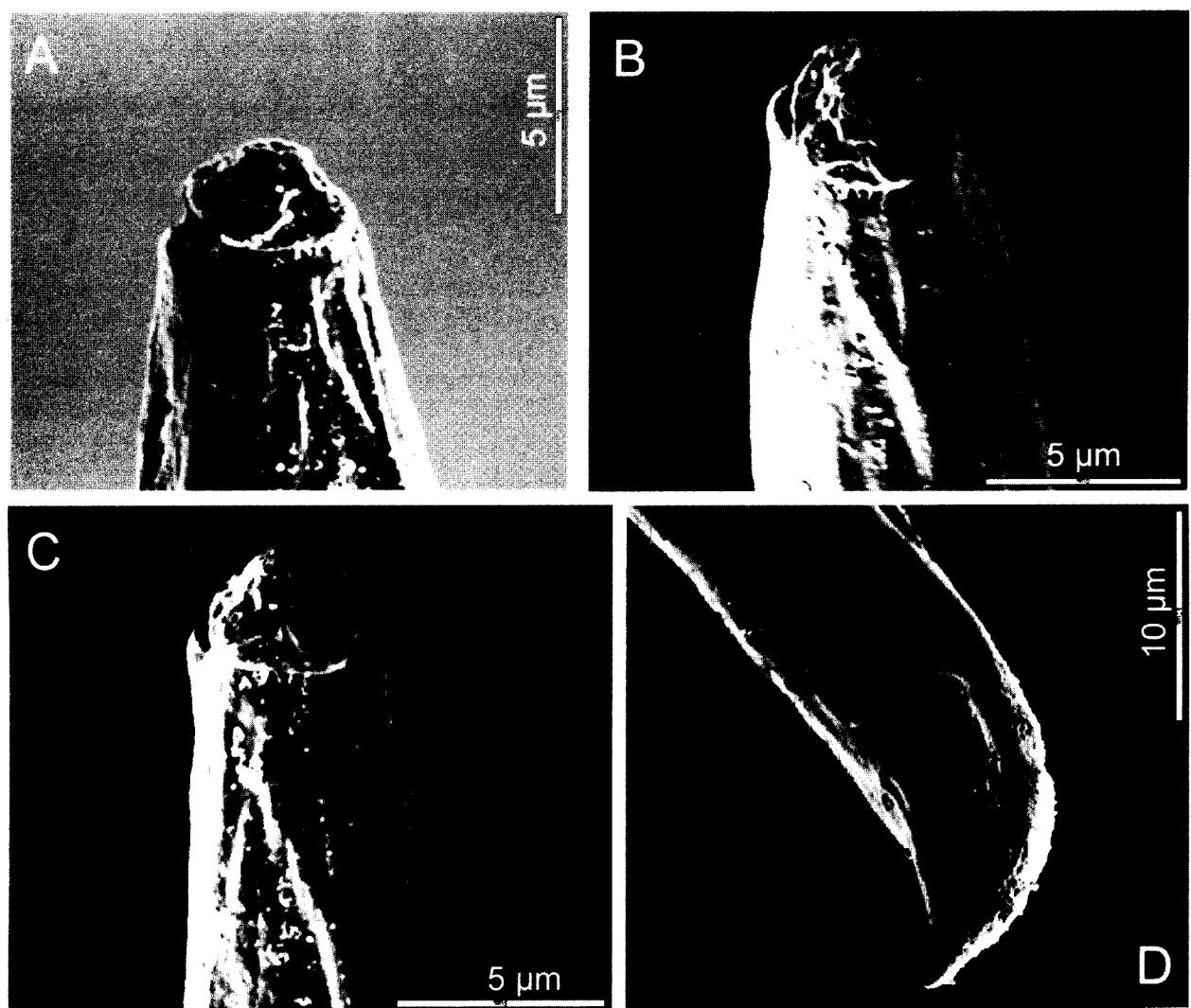


Fig. 3. *Tylencholaimus gallaicus* sp. n. (SEM). A-C: Lip region; D: Tail.

contain sperm. General morphology similar to female. Genital system diorchic. In addition to the adanal (ad-cloacal) pair, a series of four ventro-median supplements are present out the spicules range, the two posterior are almost contiguous and distinctly separated from the other two, among which there is a gap. Spicules relatively small, scarcely longer than anal body diameter, and ventrad curved. Lateral guiding pieces somewhat sigmoid. Tail conical with rounded tip. Caudal pores obscure.

Diagnosis. The new species is characterized by its very small body ($L=0.3\text{-}0.46$ mm), lip region rather rounded and lacking perioral disc, odontostyle 5-6 μm long or shorter than lip region width, anterior region of the pharynx weakly

muscular and extending abruptly, pharyngeal expansion occupying one-third to two-fifths of total neck length, female genital system monodelphic-prodelphic, vulva posterior ($V=60\text{-}67$), tail conical and slightly ventrad curved (20-28 μm , $c=12\text{-}19$, $c'=1.6\text{-}2.4$), spicules 18 μm long along the arc, and four ventromedian supplements.

Relationships. In having slender and weakly muscular anterior pharyngeal region and lacking perioral disc, *T. gallaicus* sp. n. belongs to the 'group II' of prodelphic species described by Peña-Santiago and Coomans (1994), but it differs from all of them by the combination of two features: very small size and conical tail. On the other hand, the new species is very close to *T. minutus* Vinciguerra, 1986, but it can be separated from

this in its rounded shape of lip region (vs typical cap-like) lacking perioral differentiation (vs inner region of lips distinctly separated from the rest, with disc-like appearance under LM), more anterior vulva (vs V=67-73, n=44), longer tail (vs c=19-27, n=44), and four ventromedian supplements (vs two).

Type locality and habitat. The new species was collected in an apple (*Malus domestica*) orchard, at Hermida municipality (CVTM 29TNH33), province of La Coruña (Galicia, NW Iberian Peninsula).

Type material. Holotype and paratypes deposited at the nematode collection of Departamento de Biología Animal, Biología Vegetal y Ecología, University of Jaén, Spain.

Etymology. The specific epithet is the Latin term *gallaicus*, and refers to the Roman name (*Gallaecia*) of the Iberian region where the species were collected.

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I. Seijas, M. Á. Hernández, J. Abolafia, R. Peña-Santiago. *Tylencholaimus gallaicus* sp. n. (Dorylaimida, Tylencholaimidae) из Галиции - северо-западной части Иберийского полуострова.

Резюме. Даётся иллюстрированное описание нового вида дорилаймид *Tylencholaimus gallaicus* sp. n. из северо-западной части Иберийского полуострова. Приведены фотографии, сделанные в световом и сканирующем микроскопе. Новый вид характеризуется довольно коротким телом (L=0.30-0.46), округленным губным отделом без периорального диска, одонтостилем длиной 5-6 μm (короче, чем диаметр губного отдела), слабо выраженной мускулатурой передней части пищевода, расширением пищевода, занимающим от 1/3 до 2/5 общей длины шейного отдела, монодельфной, продельфной половой системой самок с задним расположением вульвы (V%=60-67%), коническим, слабо загнутым на центральную сторону хвостовым концом (20-28 μm , c=12-19, c'=1.6-2.4), спикулами длиной 18 μm и наличием 4 вентромедианных супплементов. Новый вид близок к *T. minutus* Vinciguerra, 1986, но отличается от него округленной формой губного отдела, обычно напоминающего шапочку у *T. minutus*, отсутствием периоральной дифференциации (у *T. minutus* с внутренней частью губного региона заметно отделена от остальной его части, давая при изучении под световым микроскопом облик диска), а также сравнительно более передним расположением вульвы (vs V=67-73), более длинным хвостовым концом (vs c=19-27), и наличием 4 супплементов (а не 2, как у *T. minutus*).