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A NEW *PARATRICHODORUS* SPECIES (NEMATODA:
TRICHODORIDAE) FROM SPAIN

by
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During a study of Trichodorids in the collection of the «Instituto de Edafología y Biología Vegetal» of Madrid, an undescribed species of *Paratrichodorus* was found among the nematodes collected during an extensive survey of plant parasitic nematodes, carried out in many areas of Spain during 1973-1983. Additional individuals of a population of this species, collected at «La Higuera» Santa Olalla (Toledo), from the rhizosphere of wheat, were used in morphometric studies.

The species is described below as *Paratrichodorus hispanus* sp. n.

Nematodes were extracted from soil samples by the Cobb wet sieve technique, killed and fixed in 2% hot formalin and processed to glycerin by the slow method. Specimens were mounted on permanent slides in dehydrated glycerin and measured by means of a camera lucida.

PARATRICHODORUS HISPANUS sp. n. (Fig.1; Tables I and II)

Holotype male: L=0.976 mm; a=20.5; b=6.5; c=83.4; c'=0.45; distance oral aperture to guiding ring=23.5 μ m; onchiostyle=58.2 μ m; oral aperture to excretory pore=109.4 μ m; T=65; spicule=55.8 μ m; gubernaculum=14.7 μ m; distance of first supplement from anus=11.1 μ m; distance of second supplement from anus=28 μ m; distance of third supplement from anus=118 μ m.

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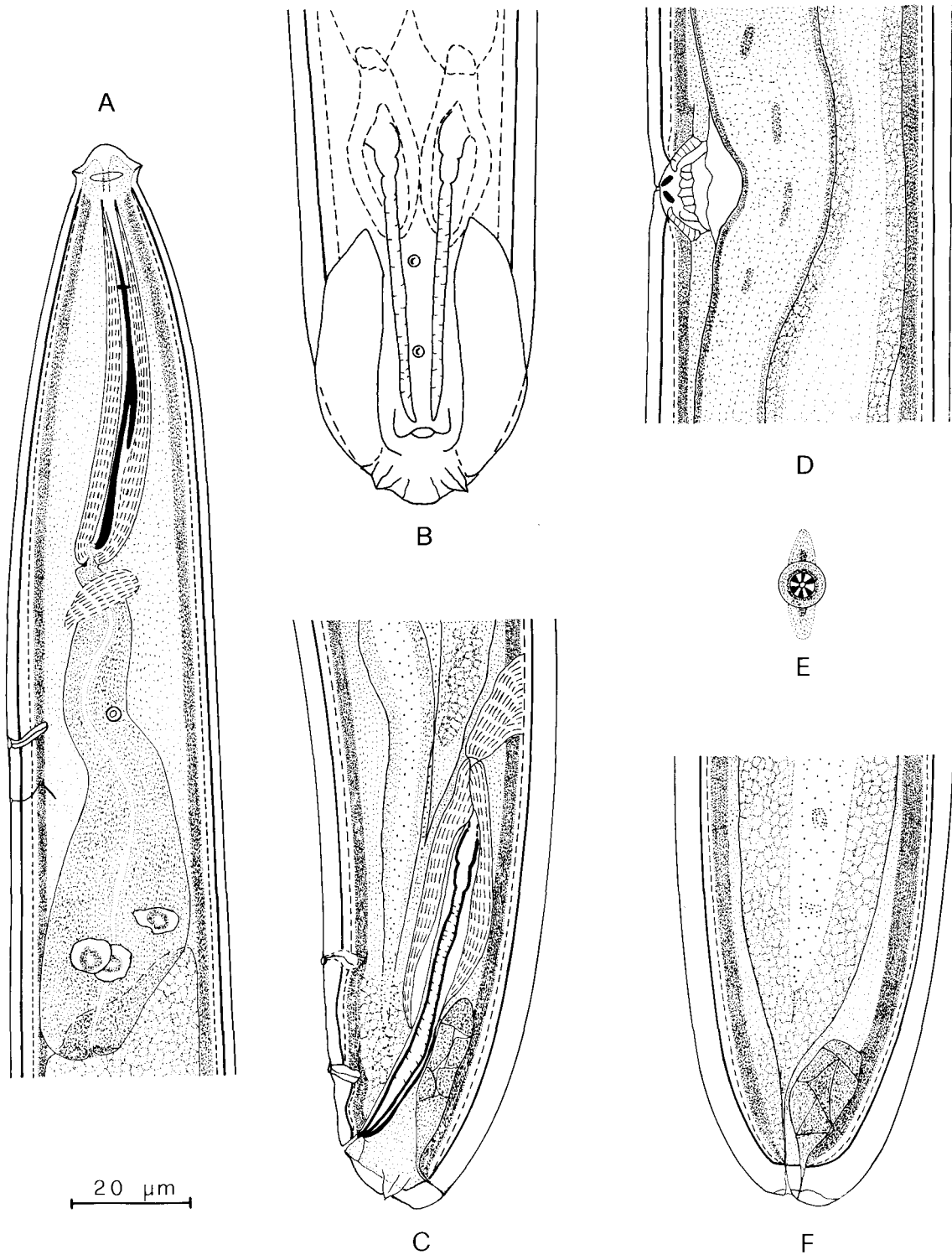


Fig. 1 - *Paratrichodorus hispanus* sp. n. A) anterior region of male; B) posterior region of male in ventral view; C) posterior region of male; D) vulval region in lateral view; E) vulva ventral view; F) posterior region of female.

Table I - *Morphometric data of Paratrichodorus hispanus sp. n. (paratypes).*

Males n=20	Means	Range	Standard Deviation
L mm	0.956	0.826-1.103	0.085
Body width μm	47.4	41.1-53	2.62
Neck length μm	148.7	128.8-174.8	10.08
Onchiostyle length μm	59.4	54.7-62.3	1.96
Oral aperture to guiding ring μm	25.6	23.5-28.2	1.33
Oral aperture to excretory pore μm	110.5	97.6-122.3	6.21
Cephalic papillae to excretory pore μm	9.7	4.7-20	3.27
Spicule length μm	56	53-61.7	2.76
Gubernaculum μm	14.5	13.5-16.4	0.76
Cloaca to SP1 μm	10.6	7.6-12.9	1.58
SP1 to SP2 μm	21.9	14.1-34.1	4.46
SP2 to SP3 μm	100.05	78.2-144	18.20
Ratios: a	19.8	13-25	2.56
b	6.4	5.6-7.7	0.61
c	77.8	55.8-102	13.94
c'	0.48	0.34-0.61	0.069
T	67.4	60-73	3.48
Oral aperture to excretory pore/neck length %	74.5	64.5-83.5	5.37
Onchiostyle length/neck length %	40.02	35.6-45.7	2.41

Table II - *Morphometric data of Paratrichodorus hispanus sp. n. (paratypes).*

Females n=20	Means	Range	Standard Deviation
L mm	0.985	0.898-1.100	0.057
Body width μm	50.1	45.3-57	3.55
Neck length μm	158.09	133.3-170.3	9.96
Onchiostyle length μm	59.6	56.4-63.5	2.01
Oral aperture to guiding ring μm	25.3	22.3-28.8	1.45
Oral aperture to excretory pore μm	114	103-123.5	5.03
Ratios: a	19.7	17.1-22.7	1.50
b	6.2	5.4-7.3	0.54
V	54.7	51-57.9	1.77
Oral aperture to excretory pore/neck length %	72.3	62-84.9	5.35
Onchiostyle length/neck length %	37.8	33.7-45.3	2.78

Allotype female: L=0.976 mm; a=18.4; b=6.0; c=subterminal; c'=subterminal; distance oral aperture to guiding ring=25.8 μm ; onchiostyle=57.6 μm ; oral aperture to excretory pore=114.7 μm ; V=56.5.

Description

Male. Body moderately robust, almost straight when killed by heat; cuticle swollen, subcuticle with very fine transverse striations; lip region rounded, separated from body contour by a constriction; labial papillae raised; one ventral cervical pore 9-10 μm anterior to excretory pore; paired lateral body pores almost at level of ventral cervical pore, 20-22 μm posterior to base of onchiostyle; excretory pore 110 μm from anterior end, at level of enlarged portion of oesophagus; nerve ring located at beginning of isthmus; pharyngeal bulb occupying about one half of the pharynx; nuclei of posterior subventral glands anterior to oesophago-intestinal junction, close to dorsal gland nucleus; bulb not overlapping intestine; intestine clearly overlapping dorso-laterally the oesophagus base; testis typical of the genus; three ventromedian supplementary papillae, the first slightly anterior to cloaca opening, the second at 40-50% of the retracted spicules, the third, inconspicuous, at 3-4 body width from anus; spicules almost straight, distal third slightly curved ventrally with fine transverse striations from base of the head to the distal quarter; cephalic portion of spicules slightly enlarged in lateral view, with irregular outline, clearly expanded in ventral view; gubernaculum almost straight, slender proximally, thickened distally; caudal alae present, extending laterally from slightly anterior to middle supplement to postcloacal papillae; one pair of sublateral postcloacal papillae, with large base and protruding from the tail contour; bilobed flap partially covering the cloaca opening, very evident in ventral view; tail straight with rounded terminus, bearing a pair of subterminal caudal pores.

Female. General appearance typical of the genus. Body straight to slightly curved ventrally; cuticle, lip region, oesophagus and gland nuclei as in the male; excretory pore at level of enlarged portion of oesophagus; reproductive system amphidelphic, with ovaries reflexed and spermatheca filled with sperms; vagina extending inward over 30% of the corresponding body diameter; vaginal refractive thickenings inconspicuous, appearing as two small drops in lateral view; vulva pore like in ventral view; one lateral body pore present on each side of the body, situated at 45-50 μm before the vulva; tail rounded with subterminal anus and terminal caudal pores.

Type material. Holotype, allotype, 10 paratype females, and 10 paratype males in the collection of the Istituto di Nematologia Agraria del Consiglio Nazionale delle Ricerche, Bari, Italy; 6 paratype males and 6 paratype females in the collection of the Instituto de Edafologia y Biologia Vegetal of the Consejo Superior de Investigaciones Cientificas, Madrid, Spain; 2 paratype females and 2 paratype males, Nematology Department, Rothamsted Experimental Station, Harpenden, Herts, England; 2 paratype males and 2 paratype females, Plant Nematology Collection, United States Department of Agriculture, Beltsville, Maryland, U.S.A.

Type habitat and locality. In the rhizosphere of wheat at «La Higueruela» Santa Olalla (Toledo), Spain.

Differential diagnosis. *Paratrichodorus hispanus* sp. n. is similar to *P. grandis* Rodriguez *et* Bell, 1978, and *P. atlanticus* Allen, 1957. It differs from *P. grandis* in the more posterior ventral cervical pore, just anterior to the excretory pore; the first and second ventromedian supplementary papillae closer to the anus, located at level of anterior half of retracted spicules (the second ventromedian supplementary papilla in *P. grandis* is located at level of the head of the retracted spicules); spicules longer (56 vs 40 μm) and onchiostyle shorter (60 vs 70 μm). It differs from *P. atlanticus* in having one pair of postcloacal papillae (usually two in *P. atlanticus*); shorter spicules (56 vs 79-87 μm); different shape of tail and shorter onchiostyle (60 vs 68-82 μm).

S U M M A R Y

Paratrichodorus hispanus sp. n. found in the rhizosphere of wheat in Spain is described. This species is similar to *P. grandis* Rodriguez and Bell, 1978 from which it differs in its longer spicules, shorter onchiostyle and different position of ventromedian cervical pore and to *P. atlanticus* Allen, 1957 from which it differs in its shorter spicules and onchiostyle and different shape of tail and number of postcloacal papillae.