

Description of *Discocriconemella uruguayensis* n.sp. (Nematoda : Criconematidae)

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Summary – A new species of *Discocriconemella*, collected from native forests in the central part of Uruguay from the rhizosphere of *Populus* sp. and unidentified grasses grown in an uncultivated habitat, is described. *Discocriconemella uruguayensis* n.sp. falls into “group 4” of Vovlas (1992), subdivision of the genus which contains other five species with a dorsally and ventrally indented, characteristic cephalic disc, showing paired dorsal and ventral projections. The new species is closely related to *D. macramphidia* De Grisse, 1967, but differs from it by having longer body (327-411 vs 280-320 μm), shorter stylet (49-53 vs 57-65 μm), and more body annuli (R = 107-117 vs 68-82), and in the absence of submedian lobes, which are very distinct in *D. macramphidia*.

Résumé – *Description de Discocriconemella uruguayensis* n. sp. (Nematoda : Criconematidae) – Description est donnée d'une nouvelle espèce de *Discocriconemella* provenant d'une forêt primitive du centre de l'Uruguay, récoltée dans la rhizosphère de *Populus* sp. et de graminées indéterminées. *Discocriconemella uruguayensis* n. sp. se classe dans le « groupe 4 » défini par Vovlas (1992) dans sa subdivision du genre, groupe contenant cinq autres espèces montrant un anneau céphalique caractéristique, indenté dorsalement et ventralement, et des projections paires, dorsales et ventrales. Cette nouvelle espèce est très proche de *D. macramphidia* De Grisse, 1967 dont elle diffère par un corps plus long (327-411 vs 280-320 μm), un stylet plus court (49-53 vs 57-65 μm), des anneaux plus nombreux (R = 107-117 vs 68-82) et l'absence de lobes submédiens, un caractère très net chez *D. macramphidia*.

Key-words : Criconematoidea, *Discocriconemella*, morphology, nematode, SEM, taxonomy, Uruguay.

The genus *Discocriconemella* proposed by De Grisse and Loof (1965) and characterized by a 2nd cephalic annulus greatly enlarged and modified into a disc. This disc, while present in all 23 species in the genus, exhibits some interspecific variability, mostly in its shape. This was used by Vovlas (1992) to subdivide the genus into four groups for an easier identification of the nominal species. In the present article is presented the description of a new species, *Discocriconemella uruguayensis* n.sp., collected in Uruguay.

Specimens used in this study were extracted from soil samples with magnesium sulfate centrifugal flotation (Coolen, 1979). Specimens for light microscopy were fixed in hot FP 4:1 and processed to glycerol by Seinhorst's (1966) rapid method. Specimens were prepared for SEM observations using Wergin's (1981) methods, coated with gold and observed with a Jeol 50-A stereoscan at 5-10 kV of accelerating voltage. The abbreviations used are those defined by Siddiqi (1986).

Discocriconemella uruguayensis n. sp. (Figs 1, 2)

MEASUREMENTS

See Table 1.

DESCRIPTION

Female : Relaxed body posture after fixation C-shaped, cylindrical with constant diameter for the most part of the body. Annuli 3.3 ± 0.3 (3.0-3.7) μm at mid-body with posterior margins smooth and very few lateral anastomoses. Cephalic disc 9 ± 0.9 (7-10) μm wide with margin not retrorse, separated from the first body annulus by a collar distinctly visible in lateral view. Cephalic disc roughly oval, with paired, dorsal and ventral submedian projections. Oral opening I-like; amphid apertures conspicuous and oval. Stylet well developed, conus 80 ± 2 (78-82) % of stylet length with knobs anteriorly directed. Excretory pore at level of or posterior to oesophagus base. Gonad extending anteriorly 159 ± 25 (132-212) μm , about 45 % body length. Ovary outstretched. Spermatheca round, 12-16 μm in diameter filled with sperm in most of specimens, situated twelve to sixteen annuli anterior to the vulva. Vulva opening on the posterior margin of a ventrally enlarged annulus. Anal opening, distinct, pit-like, on the posterior margin of an annulus. Tail bluntly conoid, terminal annulus often indented.

Juveniles : Resembling females in body posture and cephalic disc configuration, but markedly differing from females in gonad development and cuticular ornamenta-

Table 1. Morphometric data for twenty paratype females and holotype of *Discocriconemella uruguayensis* n. sp. (All measurements in μm).

	Paratypes	Holotype
L	358 \pm 27 (327-411)	363
Body width	27 \pm 4 (37-52)	38
Oesophagus length	84 \pm 4 (75-91)	84
Excretory pore	90 \pm 7 (77-107)	90
Stylet length	50 \pm 1.1 (49-53)	50
Stylet knob width	8 \pm 0.3 (7-9)	9
Tail length	17 \pm 1.9 (15-21)	17
R	111 \pm 3.8 (107 + 111)	110
Rst	18 \pm 1.1 (17-20)	18
Res	27 \pm 1.5 (23-29)	27
Rex	29 \pm 1.3 (25-30)	29
RV	10 \pm 1.8 (9-12)	10
Ran	7 \pm 0.5 (7-8)	7
V	92 \pm 0.8 (90-93)	92
St % L	14 \pm 1.1 (11-16)	14
St % oesoph.	60 \pm 2.5 (55-63)	59
a	8.6 \pm 0.9 (6.5-10)	9.5
b	4.2 \pm 1 (3.5-5.1)	4.3
c	20 \pm 2 (18-25)	21
VL/VB	1 \pm 0.1 (0.8-1.1)	0.96
VL/ST	0.5 \pm 0.07 (0.4-0.7)	0.5

tion. Body annuli distinctly ornated by 32-38, irregularly disposed, small scales, visible under light and SEM microscopy.

Males : Not found.

DIAGNOSIS AND RELATIONSHIPS

D. uruguayensis n. sp. females are characterized by a body length of 349-384 μm , with 107-117 smooth annuli, rare lateral anastomoses, a stylet length of 49-

53 μm , and a round cephalic disc, with paired dorsal, and submedian projections.

According to the grouping of species within the genus *Discocriconemella* by Vovlas (1992) and present study, the new species belongs to "group 4" which includes other five species (see Table 1, in Vovlas, 1992). *Discocriconemella uruguayensis* n. sp. can be immediately distinguished from four species in this group - *D. caudaventer* Orton Williams, 1979; *D. retroversa* Sauer & Winoto, 1975; *D. pannosa* Sauer & Winoto, 1975; *D. hengsungica* Choi & Geraert, 1975 - by its much shorter stylet (49-53 vs 68-113 μm). It is closely related to *D. macramphidia* De Grisse, 1967, from which it can be distinguished as follows (measurements combined from original description; the report of Sauer and Winoto [1975]; and Luc's [1970] study). *D. uruguayensis* n. sp. females have longer body (327-411 vs 280-320 μm); shorter stylet (49-53 vs 57-65 μm); more body annuli (107-117 vs 68-82); posterior vulva (V = 90-93 vs 84-87); posterior excretory pore position (Rex = 25-30 vs 22-23); and no submedian lobes vs present in *D. macramphidia*.

TYPE HABITAT AND LOCALITY

Alluvial soil sample collected on the rhizosphere of *Populus* sp. and unidentified grasses in Bella Union, Uruguay.

TYPE SPECIMENS

Holotype (female) and ten paratypes deposited at Istituto di Nematologia Agraria del Consiglio Nazionale delle Ricerche, Bari, Italy. One glass slide containing two or three females deposited in the following institutions : Nematology and Entomology Department, Rothamsted Experimental Station, Harpenden, Herts, UK; Muséum National d'Histoire Naturelle, Paris, France; Nematode Collection of the Landboowhogeschool, Wageningen, the Netherlands; University of California, Davis USA; USDA Nematode Collection, Beltsville, MD, USA.

References

- COOLEN, W. A. (1977). Methods for extraction of *Meloidogyne* spp. and other nematodes from roots and soil. In : Lamberti, F. & Taylor, C. A. (Eds). *Root-knot nematodes (Meloidogyne species); systematics, biology, and control*. New York & London, Academic Press : 317-329.
- DE GRISSE, A. (1967). Description of fourteen new species of Criconematidae with remarks on different species in this family. *Biol. Jaarb.*, 35 : 66-125.
- DE GRISSE, A. & LOOF, P. A. A. (1965). Revision of the genus *Criconemoides* (Nematoda). *Meded. LandbHogeschool. OpzoekStns Gent*, 30 : 577-603.
- LUC, M. (1970). Contribution à l'étude du genre *Criconemoides* Taylor, 1936 (Nematoda : Criconematidae). *Cah. ORSTOM, Sér. Biol.*, 11 : 69-131.

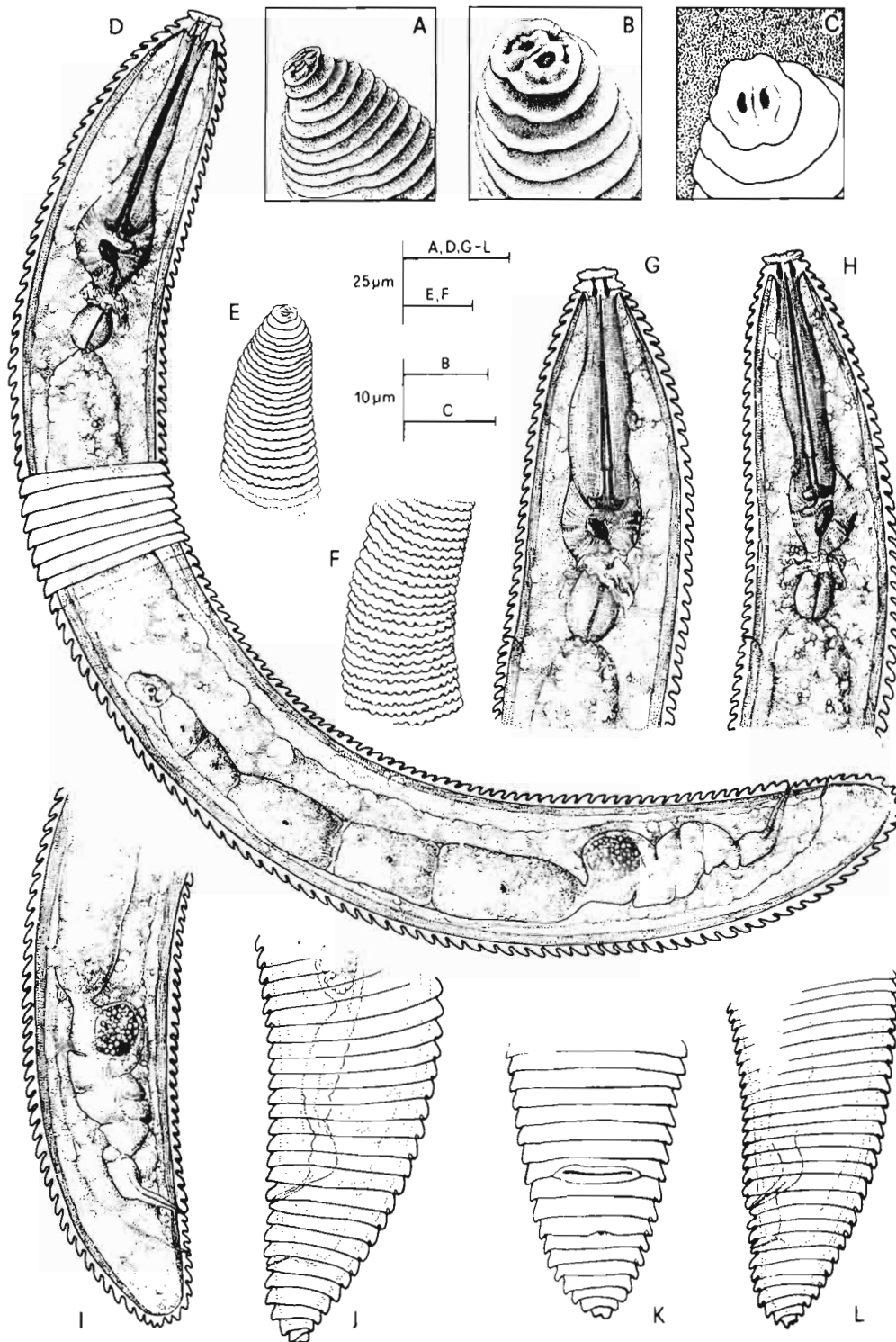


Fig. 1. *Discocriconemella uruguayensis* n. sp. A, B, C : Head region, profile and face view; D : Entire female; E, F : Anterior region and cuticular ornamentation of juvenile; G, H : Anterior region of female; I-L : Female posterior body portions (lateral view in I, J, L; ventral in K).

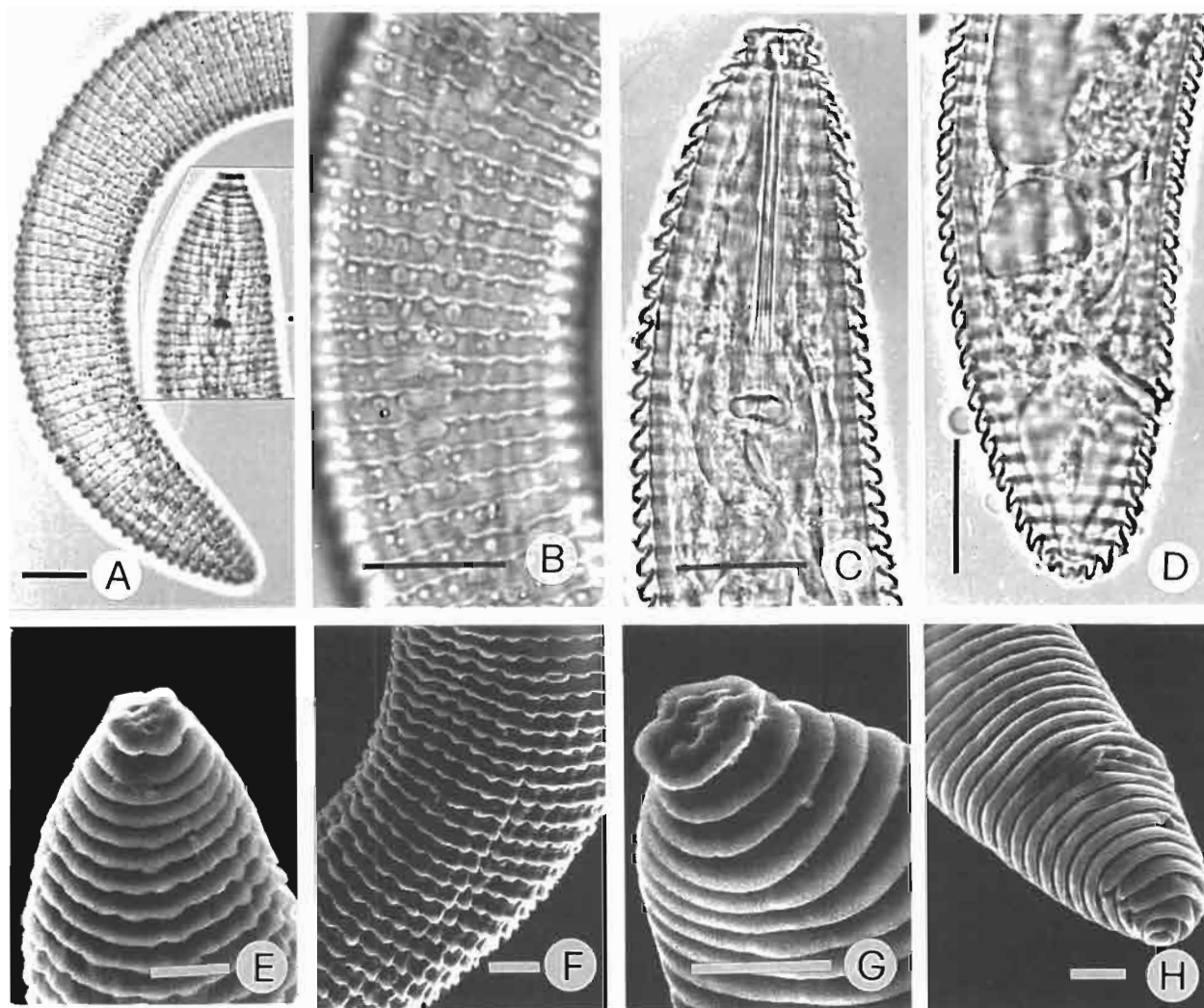


Fig. 2. *Discocriciconemella uruguayensis* n. sp. A, B: Photomicrographs of juvenile specimens showing the body annules distinctly ornamented with scales; C, D: Female anterior and posterior body portion; E, F: SEM micrographs of juvenile anterior body portion and cuticular ornamentation; G, H: Female anterior end and posterior body portion on latero-ventral view by SEM. (Scale bars = 20 µm).

SAUER, M. R. & WINOTO, R. (1975). Species of *Discocriciconemella* from Malaysia. *Nematologica*, 21: 333-340.

SEINHORST, J. W. (1966). Killing nematodes for taxonomic study with hot F.A. 4:1. *Nematologica*, 12: 78.

SIDDIQI, M. R. (1986). *Tylenchida parasites of plants and insects*. Wallingford, UK, C.A.B. International, 645 p.

VOVLAS, N. (1992). Taxonomy of *Discocriciconemella* (Nematoda: Criconematoidea) with a redescription of *D. mauritiensis*. *J. Nematol.*, 24: 391-398.

WERGIN, W. P. (1981). Scanning electron microscopy techniques and applications for use in nematology. In: Zuckerman, B. M. & Rohde, R. A. (Eds). *Plant parasitic nematodes*, Vol. 3. New York & London, Academic Press: 175-204.