

DESCRIPTION OF A NEW SPECIES OF *HELICOTYLENCHUS* STEINER, 1945 (NEMATODA: HOPLOLAIMIDAE) AND OBSERVATIONS ON THREE OTHER SPIRAL NEMATODES [DESCRIPCION DE UNA ESPECIE NUEVA DE *HELICOTYLENCHUS* STEINER, 1945 (NEMATODA: HOPLOLAIMIDAE) Y OBSERVACIONES DE TRES NEMATODOS ESPIRALES]. Emma Zavaleta-Mejía and Carlos Sosa-Moss. Rama de Fitopatología, Colegio de Postgraduados, Chapingo, Méx. México.

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ABSTRACT

Helicotylenchus jojutlensis new species, *H. digonicus*, *H. dihystra*, and *H. erythrinae*, were found in a nematode survey of the State of Morelos, México. The new species is described and illustrated.

Key Words: spiral nematodes, taxonomy, surveys.

INTRODUCTION

This paper is the result of a nematode survey done in the State of Morelos, México from April of 1976 to August of 1976. All measurements and drawings were done from specimens fixed and killed following Seinhorst's method (2, 3, 4) and mounted in pure dehydrated glycerine.

HELICOTYLENCHUS JOJUTLENSIS N. SP.

(Fig. 1)

MEASUREMENTS: Holotype female: L : 0.71 mm; a : 24.0; b : 6.0; b' : 4.8; c : 45.1; c' : 1.0; V : 60.3; spear : 27.4 um; m : 50.0; o : 35.7

42 Females: L : 0.78 (0.64 - 0.90) mm; a : 24.8 (19.6 - 29.6); b : 6.4 (5.1 - 7.5); b' : 5.2 (4.4 - 6.5); c : 46.1 (36.5 - 54.7); c' : 1.0 (0.9 - 1.2); V : 60.5 (58.7 - 63.7); spear : 27.9 (27.4 - 28.9) um; m : 47.9 (46.4 - 50.8); o : 38.0 (32.5 - 39.3).

DESCRIPTION: Female (Holotype): Body an open spiral, with posterior end strongly curved ventrally. Lip region hemispherical, continuous with body contour; 4 indistinct annules. Spear knobs well developed, anterior surfaces slightly concave. Anterior cephalid 4 and posterior 11 annules from base of lip region. Excretory pore 100 um from anterior end, just posterior to nerve ring. Hemizonid just anterior to excretory pore. Esophagus with long, slender isthmus. Spermatheca offset, without sperm. Lateral field with slightly irregular incisures, incompletely areolated. Phasmids 8 annules anterior to anus. Tail conical (Fig. 1A) slightly concave dorsally with narrower distal annules, 15.7 um in length, 11 annules.

Females (Paratypes): Lip region sometimes with 5 annules; spear knobs sometimes flattened anteriorly. Cephalids rarely observed. Lateral field incisures sometimes incompletely areolated, with inner incisures becoming fused in tail region. Phasmids vary from 1 to 10 annules anterior to anus. Tail dorsal concavity sometimes inconspicuous.

Male unknown.

TYPE HABITAT: Clay soil around roots of Honduras grass [*Isophorus unisetus* (Presl.) Schlecht.].

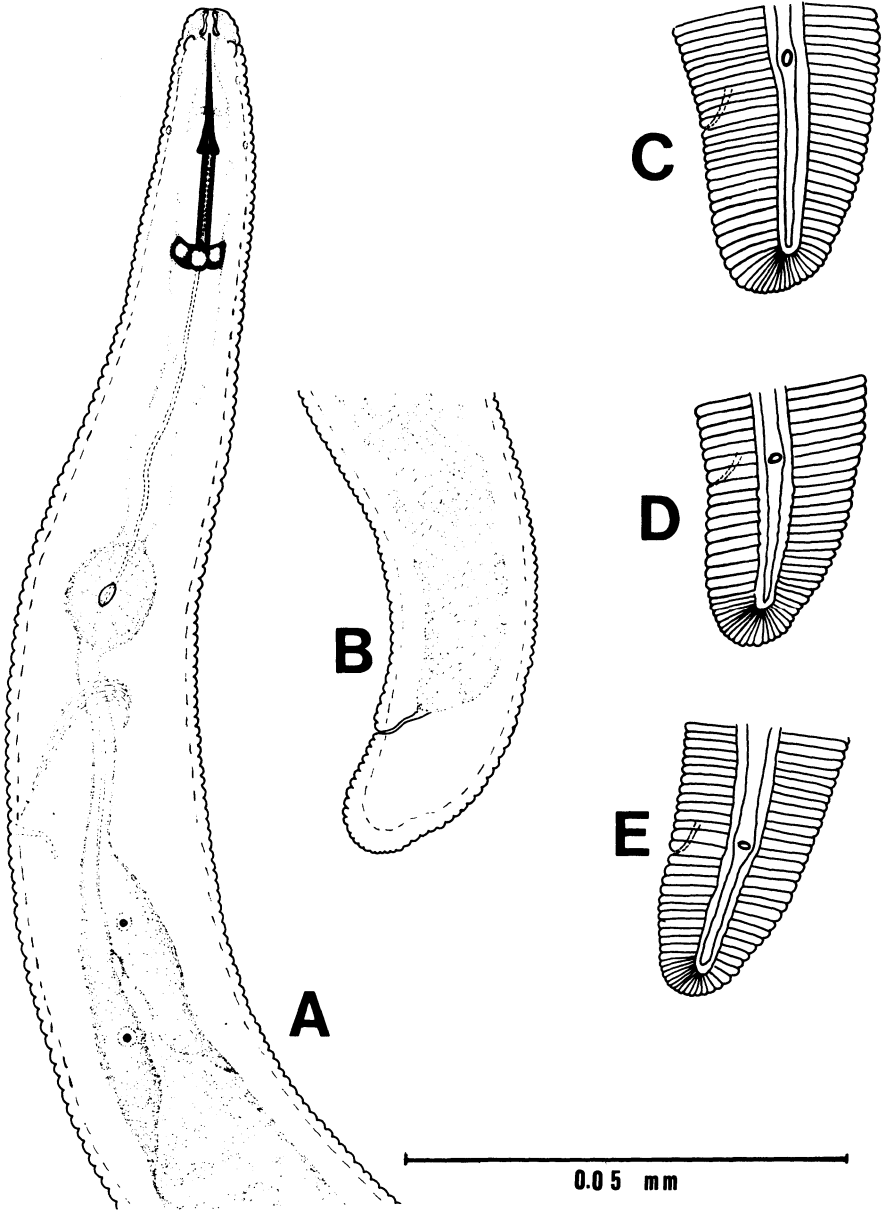


Fig. 1. *Helicotylenchus jojultensis* n. sp. A. Female, anterior end. B-E. Female, posterior end.

TYPE LOCALITY: 3.5 Km highway Jojutla-Higuerón, municipality of Jojutla, Morelos.

TYPE MATERIAL: The holotype, 1 ♂, on slide number A-031-1 in the nematode collection of the Rama de Fitopatología, Colegio de Postgraduados, Chapingo, Méx., México. Paratypes on slides number A-031-2 in same collection. Other paratypes deposited as follows: 4 ♀, Plantenziektenkundige Dienst, Wageningen, The Netherlands; 4 ♀ at the USDA Nematode Collection, Nematology Laboratory, Beltsville, Maryland; and 3 ♀ at the Commonwealth Institute of Helminthology, St. Albans, England.

DIAGNOSIS: *H. jojutlensis* n. sp. is most closely related to *H. concavus* Román, 1961, *H. platyurus* Perry, 1959 and *H. multicinctus* (Cobb, 1893) Golden, 1956. It can be distinguished from *H. concavus* by the stronger spear knobs with flattened or slightly concave anterior surfaces, phasmids usually closer to anus, and more pronounced conical tail. Differs from *H. platyurus* by the narrower, almost inconspicuous, annules of tail end, the slightly dorsal concavity of the tail; and indistinct lip annules. *H. jojutlensis* n. sp. can be distinguished from *H. multicinctus* by the larger size, spermatheca without sperm, and absence of males.

HELICOTYLENCHUS DIGONICUS

Perry in Perry, Darling and Thorne,
1959.

MEASUREMENTS: 20 Females: L : 0.67 (0.61 - 0.73) mm; a : 23.5 (20.4 - 25.8); b : 6.0 (5.0 - 7.2); b' : 4.6 (4.0 - 5.3); c : 35.2 (25.2 - 43.7); c' : 1.4 (1.0 - 1.8); V : 60.0 (58.4 - 62.0); spear : 28.0 (26.4 - 28.4) um; m : 4.92 (46.4 - 52.1); o : 59.6(55.1 - 64.3).

DESCRIPTION: Female: Lip region truncate, not set off from body, often with 4 annules, sometimes with 5 annules. Excretory pore at level of beginning of posterior part of esophagus, 99 to 119.5 um from anterior end. Hemizonid was not observed. Lateral field frequently with external incisures incompletely areolated at all length of the body, inner incisures very irregular. Phasmids located 6 to 7 annules anterior to level of anus. Tail usually more curved dorsally, 8 to 14 annules in length, generally with slight ventral projection.

Males unknown.

HABITAT AND LOCALITY: Soil around root of bean (*Phaseolus vulgaris* L.) Yautepec, Mor., México.

REMARKS: The population named here as *H. digonicus* differs from the original description mainly in the "c" and "o" indices, as well as in phasmid position; however, this variation appears to be a normal situation in this group of nematodes; in South African populations most *Helicotylenchus* species exhibit a wide variation with respect to measurements and phasmid position (8).

HELICOTYLENCHUS DIHYSTERA

(Cobb, 1893) Sher, 1961.

MEASUREMENTS: 61 Females: L : 0.64 (0.50 - 0.71) mm; a : 24.6 (19.2 - 27.5); b : 5.5 (5.1 - 7.1); b' : 4.5 (4.0 - 5.4); c : 38.2 (27.2 - 46.1); c' : 1.1 (0.8 - 1.4); V : 63.1 (56.7 - 65.8); spear : 25.7 (24.0 - 29.4) um; m : 48.3 (44.0 - 52.0); o : 48.8 (38.4 - 56.0).

DESCRIPTION: Female: Lip region with 4 to 6 indistinct annules. Excretory pore usually at level of beginning of posterior part of esophagus, 80.3 to 130.3 um from anterior end. Hemizonid just anterior to excretory pore. Inner incisures of lateral field fused on the tail, varying distances from anus to the fusing point. Phasmids located 6 to

12 annules anterior to level of anus. Tail variable in shape, usually more curved dorsally, frequently with ventral projection, 6 to 15 annules, 14.8 to 23.5 μm in length.

Male unknown.

HABITAT AND LOCALITY: In rhizosphere of: rice (*Oriza sativa* L.), Cuautla, Mor.; bean (*Phaseolus vulgaris* L.), Villa de Ayala, Mor.; sugar cane (*Saccharum officinarum* L.), Oacalco, Mor.; tomato (*Physalis* sp.), Coatlán del Río, Mor.

REMARKS: One Mexican population identified as *H. dihystra* showed a lip region smaller and slightly offset from the body contour, on the other hand a variation in the fusion of the inner incisures of the lateral field in the posterior half of the body was also observed. We do not consider these variations to be enough to separate this population as a new species, taking in consideration previous observations (1, 5, 6).

HELICOTYLENCHUS ERYTHRINAE

(Zimmermann, 1904) Golden, 1956.

MEASUREMENTS: 30 Females: L : 0.62 (0.54 - 0.71) mm; a : 25.5 (21.3 - 31.0); b : 5.4 (4.8 - 6.2); b' : 4.5 (3.8 - 5.2); c : 34.4 (27.4 - 43.0); c' : 1.3 (1.0 - 1.6); V : 62.6 (59.8 - 65.8); spear : 24.2 (23.5 - 25.5) μm ; m : 47.2 (44.2 - 48.0); o : 53.6 (41.6 - 63.0).

Male: L : 0.53 mm; a : 35.3; b : 5.2; b' : 4.3; c : 37.7; spear : 20.0 μm ; m : 51.7; gubernaculum : 6.5 μm ; spicules : 21.6 μm .

DESCRIPTION: Female: Lip region hemispherical, not set off from body, 4 or 5 annules. Excretory pore usually at level of anterior third of esophageal glands, 84.2 to 114.6 μm of anterior end. Hemizonid just anterior to excretory pore. Spermatheca offset with sperm. Phasmids located at anus level or 1 to 7 annules anterior to anus. Tail tapering, with pronounced ventral projection usually ending in a mucro, 8 to 12 annules, 13.7 to 22.5 μm in length.

Male: Similar to female except smaller body size and more delicate spear.

HABITAT AND LOCALITY: Soil around roots of: corn (*Zea mays* L.), Atlatlahucan, Mor.; peach tree (*Prunus persicae* L.), Tetela del Volcán, Mor.; banana (*Musa sapientum* L.), Coatlán del Río, Mor.

REMARKS: The populations named here as *H. erythrinae* differs only from the original description in the "O" index. Apparently, the distribution of this species is restricted to the more temperate zones of the State of Morelos.

RESUMEN

En una exploración nematológica realizada en el Edo. de Morelos, México, se encontraron las especies *Helicotylenchus digonicus*, *H. dihystra*, *H. erythrinae* y una especie nueva que se propone como *H. jojutlensis* n. sp.; ésta es descrita e ilustrada. *Claves: nematodos espiraliformes, taxonomía, sondeos nematológicos.*

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