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Pterotylenchus cecidogenus n. gen., n. sp., a New Stem-gall Nematode Parasitizing *Desmodium ovalifolium* in Colombia[1]

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Abstract: Pterotylenchus cecidogenus n. gen., n. sp. from stem-galls of *Desmodium ovalifolium* Wall. in Colombia is described and illustrated. The new genus belongs to Anguinidae and is related to *Orrina* Brzeski, 1980 but is unique in having large vulval flaps. *P. cecidogenus* has females with body 0.59–0.8 mm long, stylet 9–11 μm long, no median oesophageal bulb, a crustaformeria of 32–36 cells, a short post-vulval uterine sac, and a conical pointed tail.

Key words: morphology, taxonomy.

A new stem-gall nematode was first detected in December 1981 (2) in galls on the stems of a tropical pasture legume, *Desmodium ovalifolium* Wall. (syn. *D. heterocarpon*) (accession CIAT 350), at Centro International de Agricultura Tropical (CIAT), Colombia. An extensive survey of this legume in the Llanos Orientales, Colombia, showed that the nematode was present in several places, especially in pastures at least 2 years old. The stem galls were formed on nodes and stem divisions and were not easily detectable (Fig. 1). They resulted in considerable disruption of the vascular systems and eventual death of the plants. The nematode is described below as a new genus and new species in the family Anguinidae.

Materials and Methods

A large number of juveniles and females was recovered upon teasing a gall in water. The nematodes for this study were heat-relaxed and fixed and stored in a water solution of 1% formaldehyde and 6% glycerin. The measurements were taken from nematodes mounted in this fixative.

Results and Discussion

Genus *Pterotylenchus* n. gen.

Diagnosis: Anguinidae Nicoll, 1935. Small-sized (under 1 mm); straight to slightly arcuate upon relaxation. Cuticle striated. Lateral fields with four incisures, inner ones close together. Lip region smooth, low, continuous. Stylet small (about 10 μm), with distinct rounded knobs. Corpus nearly cylindrical, not differentiated into pre- and post-corpus; posterior region slightly swollen, lacking musculature and valve plates. Deirid present. Basal bulb elongate-saccate, with dorsal oesophageal gland extending over intestine for about one body-width in type-species. Vulva a long transverse slit, flanked and partly covered by large prominent cuticular flaps. Vagina at right angles to body axis. Post-vulval uterine sac present. Uterus with a crustaformeria of four rows of 8–9 cells each. Spermatheca elongate, empty. Ovary outstretched, with oocytes mostly in single file. Tail elongate-conoid, with a pointed tip. Male not known. Second-stage juveniles similar to females as regards lip region, stylet, oesophagus, and tail; dorsal gland making only a short overlap on intestine, tail less sharply pointed.

Type-species: Pterotylenchus cecidogenus n. gen., n. sp. No other species.

Remarks: This is the only known genus in Anguinidae which has vulval flaps. The generic name is derived from Greek *pteron* = wing (referring to the vulval flaps), *tylos* = knob, *enchos* = spear or stylet. The species name is from Greek *kekis* = gall, *genes* = producing.

Pterotylenchus cecidogenus n. gen., n. sp. (Fig. 2)

Measurements, 30 female paratypes: L = 0.59–0.8 (0.64) mm; a = 22–35 (28); b = 4.4–5.8 (4.9); c = 9.6–12.5 (11); c′ = 3.6–5.2 (4.5); V = 80–84 (82); stylet = 8–11 (9.5) μm.

Holotype (female): L = 0.62 mm; a = 26; b = 4.8; c = 12.6; c′ = 3.8; V = $^{60-84^{-3}}$; stylet = 9 μm.

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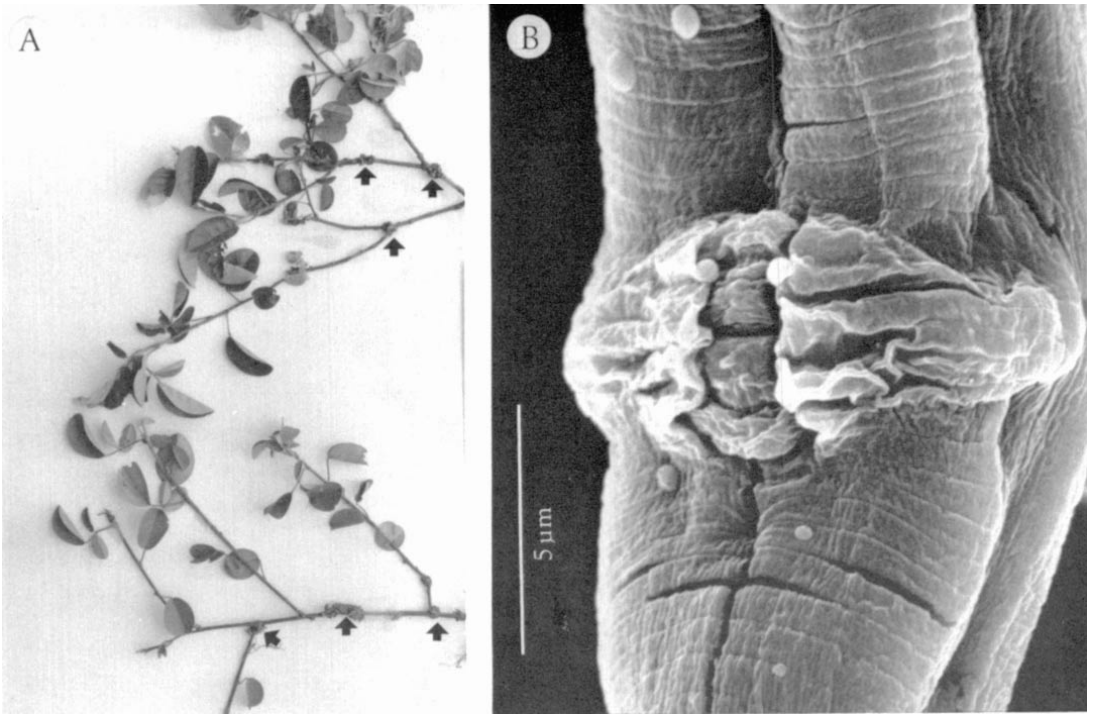

Twenty second-stage juveniles: L = 0.21–0.31 (0.25) mm; a = 18–26 (22); c = 6.1–7.5 (6.8); stylet = 6–7.5 µm.

Description, female: Body straight or slightly ventrally arcuate, often angular at vulva, maximum width 20–25 (22) µm at about a body-width anterior to vulva. Cuticle and subcuticle finely annulated; annules 0.8–1.1 µm wide. Lateral fields about one-fifth body-width, marked with four incisures, inner ones close together. Cephalic region 5.5–6 µm wide by 2–4.5 µm high. Stylet with conus about half its length; basal knobs small, rounded, 2 µm across (Fig. 2A). Orifice of dorsal gland about 2 µm behind stylet base. Corpus 61–64 µm long, with a slight swelling posteriorly where subventral glands open, devoid of myofibrils and refractive valve plates. Isthmus slender, gradually enlarging to an elongate-saccate bulb; dorsal gland extending for about one body-width over intestine subdorsally and laterally. Nerve ring at middle of isthmus. Excretory pore at about base of isthmus, 88–96 (92) µm from anterior end. Deirid just behind level of excretory pore. Vulva about half body-width long; partially covered by large flaps composed of the cuticle of about six enlarged annules (Figs. 1B, 2F, H–J). Crustaformeria comprising 32–36 cells in four rows followed by a valvula and then a collapsed spermatheca of 24 cells in four rows which joins a sphincter of four cells connecting the spermatheca to the oviduct (Fig. 2E, F). Ovary with oocytes in one or two rows, reaching near to oesophageal base. Postvulval uterine sac 12–25 µm long, empty. Rectum shorter than anal body-width. Tail elongate-conoid to a sharply pointed tip, 53–68 (60) µm long, nearly as long as vulva–anus distance (Fig. 2E, F, H). Females were not impregnated.

Male: Absent.

Juveniles: Similar to female in most details including dorsal glandular lobe and tail shape.

Habit, type-host and locality: Forms gall on stems of *Desmodium ovalifolium,* Carimagua, Colombia. Galls ranging from 0.5 to 2.0 cm in diameter are formed at nodes and stem splits and are not easily detached from the stem.

Type-specimens: Holotype and 30 female

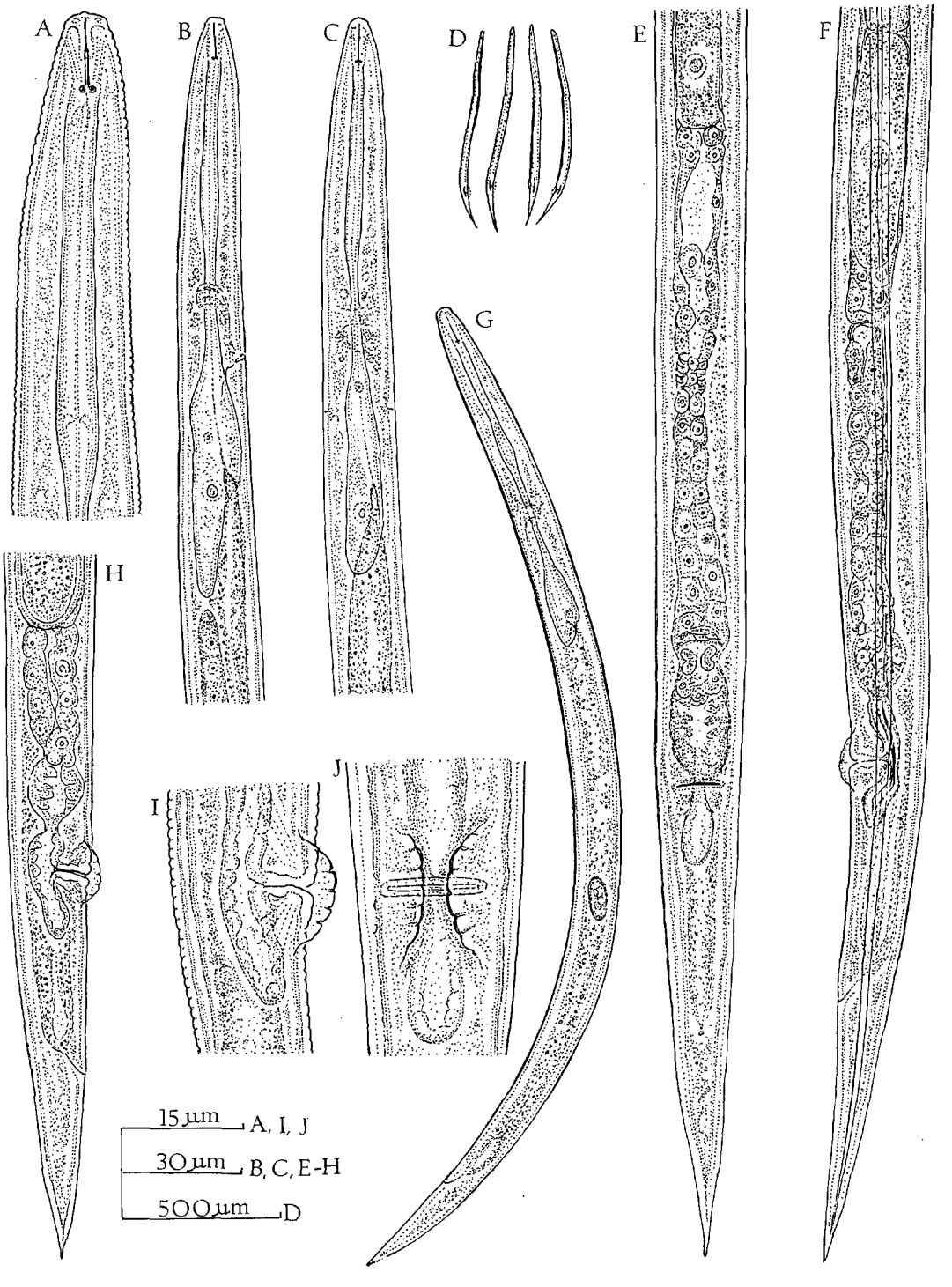

FIG. 2. *Pterotylenchus cecidogenus* n. gen., n. sp. A–C) Head ends of females. D) Adult females. E, F, H) Posterior ends of females. G) Second-stage juvenile. I, J) Vulval regions. A, B, D, F, G, H, I) Lateral views. C, E, J) Ventral views.

paratypes at Commonwealth Institute of Parasitology, St. Albans, England; 4 female paratypes each at these centers: Rothamsted Experimental Station, Harpenden, England; Landbouwhogeschool, Wageningen, The Netherlands; Indian Agricultural Research Institute, New Delhi, India; 10 female paratypes at CIAT, Cali, Colombia.

Relationship: Pterotylenchus n. gen. is unique among the family Anguinidae (1) in having vulval flaps. It is similar morphologically to *Orrina* Brzeski, 1980 in lacking a muscular median oesophageal bulb and females not being obese, but differs in having lateral vulval flaps and a short oesophageal gland lobe.

Literature Cited

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