

Butlerius macrospiculum n. sp. and *Cylindrocorpus walkeri* n. sp. (Nematoda : Diplogastroidea) from St. Lucia, West Indies

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SUMMARY

Two new species of Diplogastroidea are described from St. Lucia, West Indies. *Butlerius macrospiculum* n. sp. is characterized by the monodelphic female with cuticularized post-vulval sac and by the length and form of the male spicules. The species was extracted from frass of *Passalus* sp. (Coleoptera : Passalidae) and was observed to be predatory on other nematodes. *Cylindrocorpus walkeri* n. sp. is easily distinguished by the short conical male tail which lacks a terminal process and by the more posterior vulva than is usual in the genus. *C. walkeri* n. sp. is an ecto-phoretic associate of the cerambycid beetle *Lagochirus araneiformis* (L.). *In vitro* studies showed the nematode to be a saprophage completing its life-cycle in less than ten days at 25-30°.

RÉSUMÉ

Butlerius macrospiculum n. sp. et *Cylindrocorpus walkeri* n. sp. (Nematoda : Diplogastroidea)
découverts à Ste Lucie, Antilles

Deux nouvelles espèces de Diplogastroidea, en provenance des Antilles, sont décrites. *Butlerius macrospiculum* n. sp. est caractérisé par la femelle monodelphique possédant un sac post-vulvaire cuticularisé et par la forme des spicules du mâle. Cette espèce a été extraite des excréments de *Passalus* sp. (Coleoptera : Passalidae) et on a observé qu'elle était prédatrice d'autres nématodes. *Cylindrocorpus walkeri* n. sp. peut être distingué par la courte queue conique du mâle, dépourvue de procès terminal, et par la position de la vulve, très postérieure pour le genre. L'auteur a observé cette espèce sous les élytres du Cerambycide *Lagochirus araneiformis* (L.). Des études *in vitro* ont montré qu'elle était saprophage et accomplissait son cycle vital en moins de dix jours à 25°-30°.

Two new species of Diplogastroidea were found associated with beetles in St. Lucia. One of these, *Cylindrocorpus walkeri* n. sp., has an ecto-phoretic association with a cerambycid beetle whilst the other, *Butlerius macrospiculum* n. sp., is thought to be a casual associate normally existing in the soil. All specimens were heat relaxed at 60°, fixed in TAF and processed to glycerol before measuring.

Butlerius macrospiculum n. sp.

(Fig. 1)

DIMENSIONS

Female (n = 14) : L = 1.43 mm (1.32-1.53) ;
L' = 0.97 mm (0.89-1.05) ; width = 43 μ m (38-50) ; oesophagus = 316 μ m (300-342) ; tail = 480 μ m (410-554) ; anal body-width = 25 μ m (24-27) ; a = 33.1 (28-40) ; b = 4.5 (4.2-4.8) ;

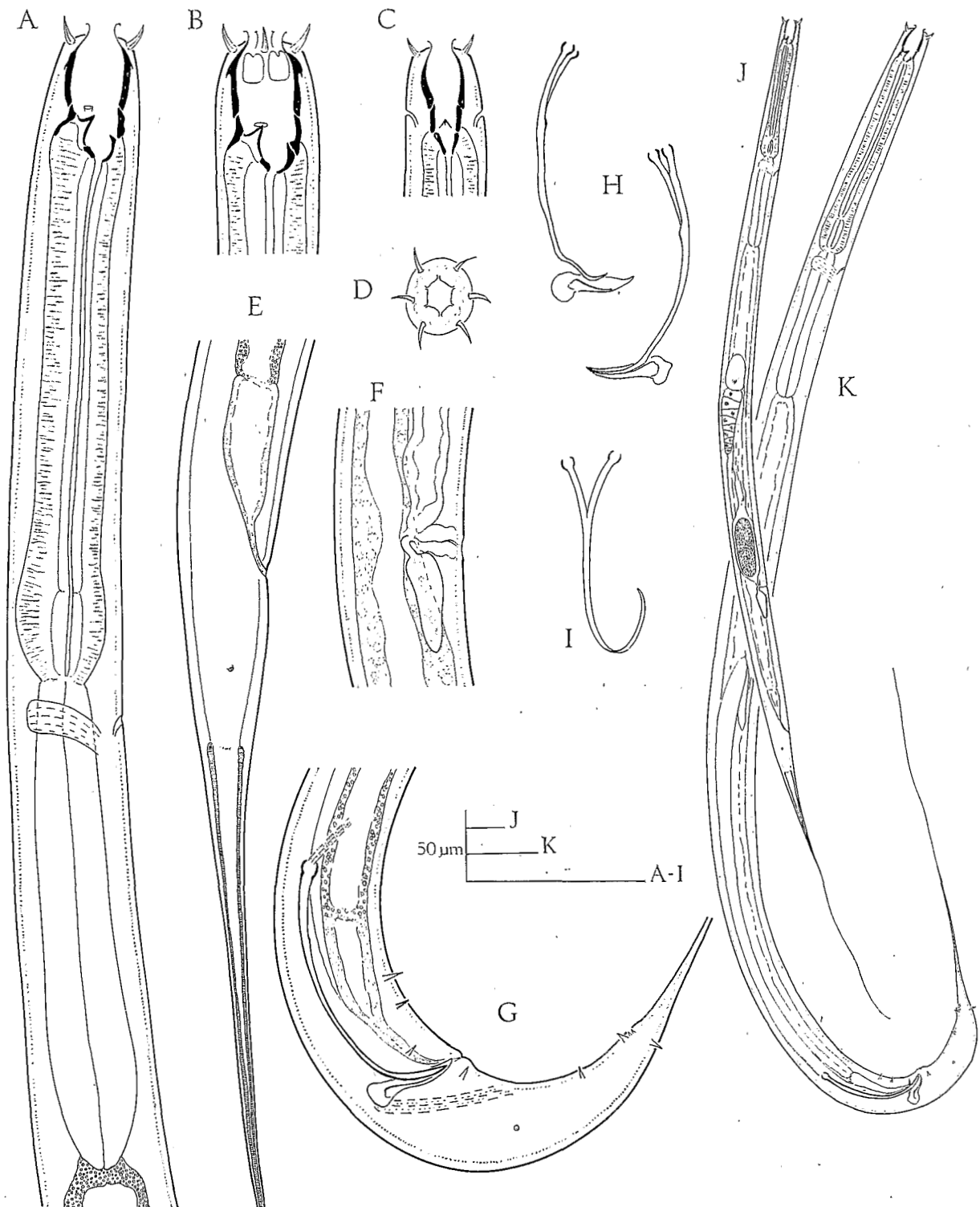


Fig. 1. *Butlerius macrospiculum* n. sp. ; A : Female oesophagus ; B : Female head region ; C : Male head region (ventral view) ; D : *En face* view of female ; E : Female tail ; F : Vulval region ; G : Male tail ; H, I : Spicules ; J : Entire female ; K : Entire male.

$c = 3.0$ (2.7-3.4); $c' = 19$ (16-22); $V = 53.8$ (49.4-56.3); $V' = 79.3$ (78.2-80).

Holotype: $L = 1.14$ mm; $L' = 0.89$ mm; $a = 33$; $b = 4.7$; $c = 2.7$; $c' = 21$; $V = 49.4$; $V' = 79.0$.

Male ($n = 11$): $L = 1.15$ mm (1.03-1.27); $L' = 0.81$ mm (0.73-0.89); width = $31 \mu\text{m}$ (27-34); oesophagus = $259 \mu\text{m}$ (232-275); tail = $370 \mu\text{m}$ (353-401); anal body-width = $27 \mu\text{m}$ (25-30); spicules (curved median line) = $79 \mu\text{m}$ (73-86); $a = 37.2$ (31.9-39.1); $b = 4.4$ (4.1-4.6); $c = 3.1$ (2.9-3.4); $c' = 13.7$ (12.4-16.0).

DESCRIPTION

Heat relaxed males and females take on a ventrally arcuate configuration with the tail region of the male sharply curved around on itself. Cuticle smooth but with a punctate appearance, the punctations being arranged in approximately transverse rows (Grootaert and Jacques (1979) recorded similar structures in *B. degrissei* Grootaert & Jacques and TEM studies showed these to be cuticular rods connecting the cortical layers to the basal striated layer of the cuticle). Head continuous with body contour, broadly truncate and bearing six prominent papillae in the female but with four small additional papillae, one at the base of both dorso- and ventro-lateral papillae, in the male. Amphidial apertures small, oval, at about the level of the dorsal tooth apex and slightly dorsally shifted. Stoma longer than wide, barrel shaped with a prominent dorsal tooth in the posterior third. Cheilorhabdions protruding as a cylinder through the oral aperture. Procorpus long and muscular, forming a collar around the base of the buccal cavity and expanding posteriorly to form the strongly valved median bulb. Isthmus encircled by the nerve ring just behind the median bulb and swelling very slightly posteriorly to form the basal bulb. Excretory pore at level of nerve ring. Female genital tract mono-prodelphic, reflexed, the developing oocytes being in a single row. One egg at a time in the uterus. Vulva a slightly sunken pore leading to a short vagina. Post-vulval sac about one body-width long and both it and the duct have highly refractive walls suggesting cuticulari-

zation. Tail long, conical, with a filiform process. About two anal body-widths behind the anus the tail appears to be strengthened by prominent refractive rods in the cuticle (Fig. 1E). Phasmid about one anal body-width posterior to anus.

Male with single reflexed testis. Spicules very long, arcuate, proximally cephalate and fused for the distal two thirds of their length (Fig. 1I). Gubernaculum prominent. Nine pairs of caudal papillae arranged as illustrated (Fig. 1G). Phasmid one anal body-width posterior to cloaca. Tail ventrally arcuate, conical at first but becoming filiform posterior to the last papillae, strongly refractive rods absent (cf. female).

TYPE HABITAT AND LOCALITY : Frass from rotting log tunelled by *Passalus* sp. (Coleoptera : Passalidae), Barre de l'Isle, St. Lucia, West Indies.

TYPE SLIDES : Holotype female, six females and seven males at the Commonwealth Institute of Helminthology, St. Albans, Herts, U.K.; three females and one male at Rothamsted Experimental Station, Harpenden, Herts, U.K.; four females and three males at the Muséum national d'Histoire naturelle, Laboratoire des vers, Paris, France.

DIAGNOSIS AND RELATIONSHIPS

B. macrospiculum n. sp. is characterized by the monodelphic female with cuticularized post-vulval sac and the length and form of the male spicules.

The genus *Bullerius* contains nearly a dozen species but only three of these are monodelphic : *B. degrissei* Grootaert & Jacques, 1979, *B. monhystera* Taylor, 1974 and the present species. *B. macrospiculum* n. sp. can easily be differentiated from the other two species by virtue of its very long (c. $80 \mu\text{m}$) spicules (both *B. degrissei* and *B. monhystera* have spicules, measured from the illustrations, less than $40 \mu\text{m}$ long). The shape of the gubernaculum is also different, being more or less triangular in *B. degrissei* and *B. monhystera*.

Grootaert and Jacques (1979) reported that the duct leading to the post-vulval sac was

tus = 47% ; rifflei = 48% (46-51), although the values are rather close.

BIONOMICS

Resistant J₃ dauerlarvae were found beneath the elytra of *Lagochirus araneiformis* (L.), a common cerambycid beetle in St. Lucia. These

larvae rapidly became active on being placed in water. When inoculated onto an agar culture of various unidentified fungi and bacteria, the J₃ moulted to the J₄ without feeding, the adult stage being reached in three days at ambient temperatures (25-30°). The complete life-cycle (adult to adult) lasted seven to ten days in the presence of abundant food.

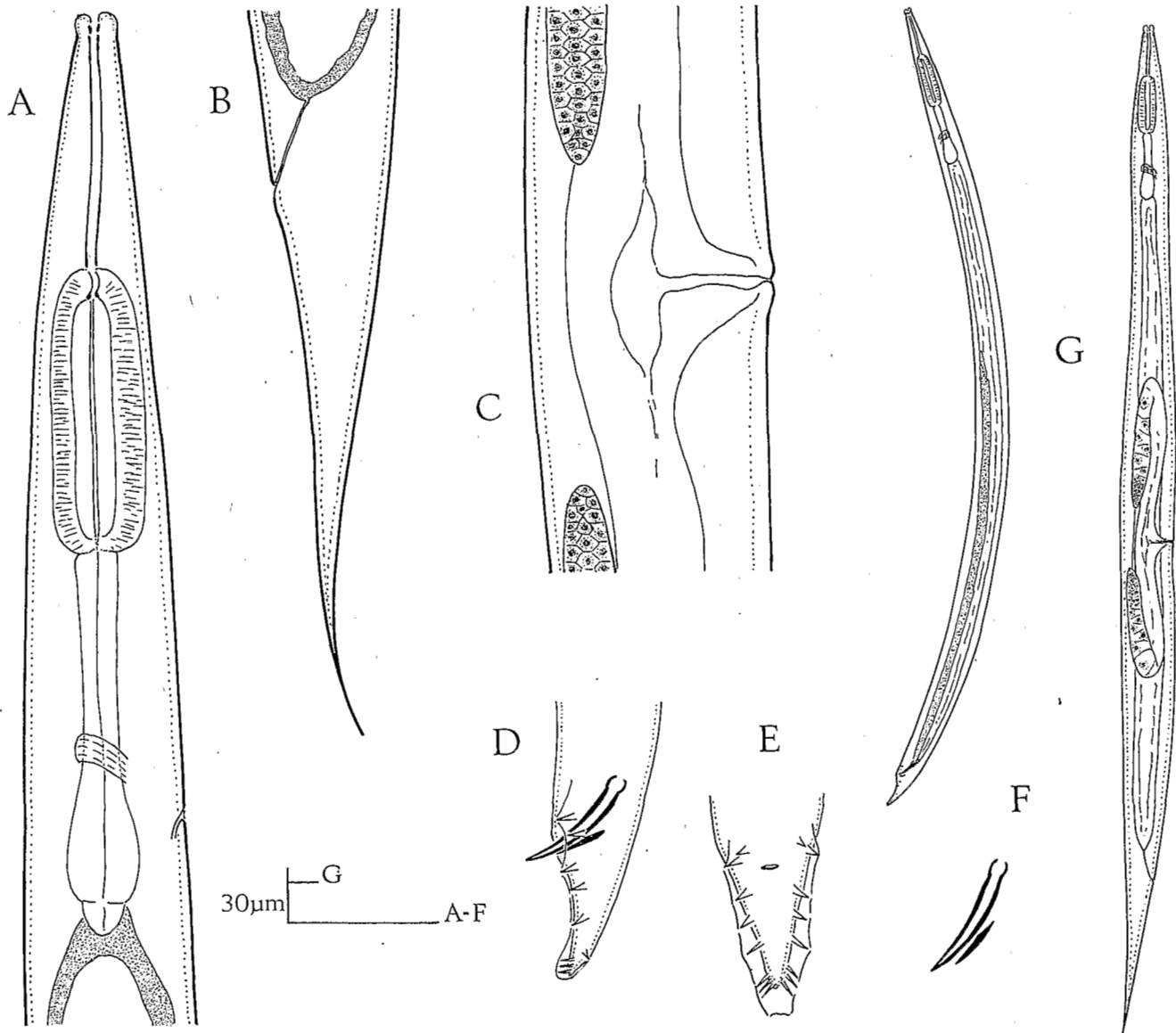


Fig. 2. *Cylindrocorpus walkeri* n. sp., A : Female oesophagus ; B : Female tail ; C : Vulval region ; D, E : Male tail ; F : Spicules ; G : Entire male and female.

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