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STUDIES OF PLANT AND SOIL NEMATODES 11. CARPHODORUS BILINEATUS N.G., N.SP. (NEMATODA : DOLICHODORINAE) FROM EUCALYPT FOREST IN QUEENSLAND

By R. C. COLBRAN, M.Agr.Sc., Ph.D.*

SUMMARY

The genus *Carphodorus* is proposed to accommodate *C. bilineatus* n.sp., which has a subspherical lip region with internal sclerotization, long stylet, oesophagus with a short terminal lobe overlapping the intestine, hemizonid behind the excretory pore, two ovaries and a subcylindrical tail with a broadly rounded terminus.

In 1964 an undescribed species with many of the characters of *Dolichodorus* Cobb but possessing an oesophagus with a short terminal lobe overlapping the intestine was found in well-drained, sandy soils from eucalypt forests at Pozieres and Landsborough in southern Queensland. Populations were relatively low and males were more common than females.

Subfamily: Dolichodorinae Chitwood and Chitwood, 1950.

Definition (emended): Hoplolaimidae (Filipjev, 1934) Weiser 1953. Nematodes of moderate size. Lip region set off, lobed; internal sclerotization well developed. Lateral fields with incisures. Hemizonid behind excretory pore. Stylet long, robust. Oesophageal glands in terminal bulb or lobe overlapping intestine. Females with two ovaries. Tails variable in shape. Caudal alae extending to terminus, often lobed.

CARPHODORUS n.g.

Definition:—Dolichodorinae. Lateral fields with two incisures. Internal sclerotization well developed in basal portion of lip region. Oesophagus with a short lobe overlapping intestine. Tail subcylindrical, 1·5-2·0 anal body widths in length; terminus broadly rounded. Caudal alae not lobed. Gubernaculum with titillae.

Type species—Carphodorus bilineatus n.sp.

* Division of Plant Industry, Queensland Department of Primary Industries.

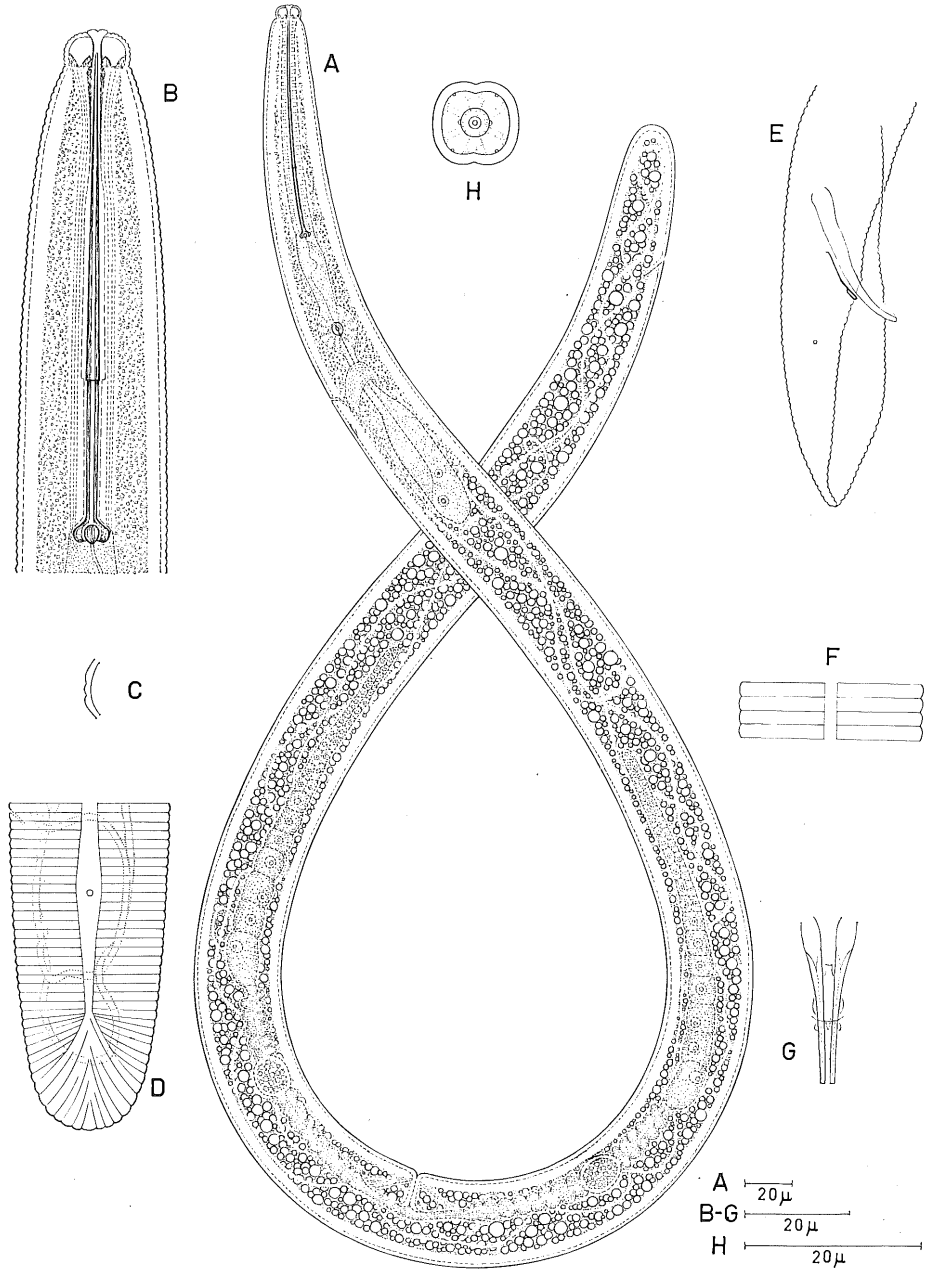

Figure 1.—*Carphodorus bilineatus* n.g., n.sp. A, female; B, female head; C, cross-section of lateral field; D, female tail; E, male tail; F, female lateral field; G, spicules and gubernaculum; H, *en face* view of female.

Carphodorus bilineatus n.g., n.sp.

(Figure 1)

Females (10).*—L = 970-1111 μ; a = 33·2-37·0; b = 6·0-6·6; b^1 = 5·5-5·7; c = 22·0-24·1; V = 55·4-57·3; stylet = 90·3-96·7 μ; prorhabdion = 60·4-67·5 μ; P.E. = 12·0-13·2.

Female (*holotype*).—L = 1111 μ; a = 37·0; b = 6·3; b^1 = 5·6; c = 23·8; V = 55·4; stylet = 96·7 μ; prorhabdion = 67·5 μ; P.E. = 12·5.

Body cylindrical, forming an open C when relaxed. Tranverse striae fine, 1·0-1·2 μ apart in mid-body. Lateral fields with two fine incisures reduced to one near isthmus and terminating about 20μ from anterior end; field anterior to incisure marked by occasional breaks in striae. Lip region subspherical, bearing 10-12 annules, set off from body by constriction. Anterior end of lip region marked by dorsal and ventral grooves. Lip cap present. Amphids opening through small pores on lateral lips at edge of lip cap. Hexaradiate framework well developed in lower part of lip region; dorsal and ventral radial blades wider than subdorsal and subventral blades. Single papilla near outer margin of each subdorsal and subventral lip. Dorsal oesophageal gland orifice 3·2 μ behind stylet. Oesophagus with ovate metacorpus and elongate, swollen terminal portion with posterior third overlapping intestine laterally. Excretory pore opposite isthmus; tubes of excretory system coiled in pseudocoele. Hemizonid 10 (5·6-10·5) μ behind excretory pore. Vulva equatorial; ovaries paired, opposed, outstretched; spermathecae subspherical; oocytes for most part in double row. Tail 1·7 (1·8-2·0) anal body widths long, subcylindrical; terminus hemispherical, striated. Phasmids one-fourth to one-fifth tail length behind anus.

Males (10).—L = 753-945 μ; a = 33·5-45·2; b = 5·7-6·8; b^1 = 5·1-6·2; c = 19·6-21·2; stylet = 70·3-83·1; prorhabdion = 50·0-57·8 μ; P.E. = 11·5-13·8; spicules = 26·5-33·5 μ; gubernaculum = 9·1-12·3 μ.

Male (*allotype*).—L = 875 μ; a = 34·6; b = 6·8; b^1 = 6·2; c = 21·2; stylet = 83·1 μ; prorhabdion = 57·8 μ; P.E. = 13·0; spicules = 28·2 μ; gubernaculum = 12·3 μ.

Shorter and slenderer than female. Transverse striae 1·2 μ apart. Lateral fields with two incisures. Dorsal oesophageal gland orifice 3·6 (3·5-4·3) μ behind stylet. Hemizonid 10·6 (9·0-10·6) μ behind excretory pore. Caudal alae extending to terminus. Spicules slightly curved, tips blunt. Gubernaculum half as long as spicules, proximal end with dorsally directed hook, distal end with titillae. Phasmids about one-fourth tail length behind cloaca.

Types.—Holotype (female) and allotype (male) slides reg. Nos. G. 3570 and G. 3571 respectively in the Queensland Museum; paratypes in the Queensland Department of Primary Industries Nematology Collection.

Type habitat.—Coarse sandy soil about the roots of *Eucalyptus andrewsi* Maiden (messmate) in open forest.

*Measurements of specimens mounted in glycerine

Type locality.—Queensland; roadside at Pozieres (Portion 104, parish of Marsh).

Other records.—*C. bilineatus* was also found in soil around the roots of *Casuarina littoralis* Salisb. (black sheoak) in eucalypt forest at Jowarra Park, Landsborough.

DISCUSSION

The systematic positions of *Dolichodorus* Cobb, 1914 and *Belonolaimus* Steiner, 1949 are not firmly established. Chitwood and Chitwood (1950) placed both genera in a new subfamily Dolichodorinae of the Criconematidae. Loof (1959) argued that both species belonged in the Tylenchidae, and as the shape of the oesophagus is a subfamily character in Thorne's system of classification, *Belonolaimus* should be placed in Hoplolaiminae and *Dolichodorus* in Tylenchinae.

Goodey (1963) left *Dolichodorus* in Dolichodorinae, placed *Belonolaimus* in Belonolaiminae Whitehead (after Whitehead 1960) and considered both subfamilies to be in Hoplolaimidae, although his diagnosis of this family stated, "head usually with well developed skeleton" and "oesophageal glands overlapping intestine".

Although *Carphodorus* n.g. has overlapping oesophageal glands it resembles *Dolichodorus* in the shape of the lip region, cephalic sclerotization, and position of the hemizonid behind the excretory pore; and the gubernaculum resembles that of *D. adelaidensis* Fisher, 1964. These characters are considered sufficient to warrant *Carphodorus* being placed in Dolichodorinae.

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