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## MORPHO-ANATOMICAL OBSERVATIONS ON *APHASMATYLENCHUS NIGERIENSIS* AND *SCUTELLONEMA CLATHRICAUDATUM* FROM WEST-AFRICA

by

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**Summary.** Previous descriptions, illustrations and geographical reports of *Aphasmatylenchus nigeriensis* Sher, 1965 and *Scutellonema clathricaudatum* Whitehead, 1959 are amplified and supplemented by light and scanning electron microscope observations. Particular consideration was given to amplifying details of lateral field areolations and surface characteristics of «en face view», useful for their identification. The presence of *A. nigeriensis* in a natural habitat at Nangota, Liberia and *A. clathricaudatum* in Koinadugu (Kabala) Sierra Leone, enlarges the distribution records for these species, while the morphometric descriptive characteristics of our populations extend the known range of variability for both species.

During plant parasitic nematode surveys in Liberia and Sierra Leone by one of authors (F.L.), reach populations of two Hoplolaiminae (*Aphasmatylenchus* Sher, 1965 and *Scutellonema* Andrassy, 1958) were extracted from soil samples. Detailed morpho-anatomical studies of glycerine mounted material confirmed that they are conspecific with *A. nigeriensis* Sher, 1965 and *S. clathricaudatum* Whitehead, 1959 respectively. This paper extends the known range of the principal descriptive characteristics and illustrates the most important diagnostic external features for both species by SEM observations. Specimens used in the study were extracted from soil by the decantation method. Specimens were killed and fixed in 4% formaldehyde and processed to glycerine in permanent slides. Specimens used for SEM observations were prepared using Wergin's (1981) method.

### Observations

#### Description of the population of *APHASMATYLENCHUS NIGERIENSIS* Sher, 1965 from Liberia (Figs. 1, 2)

*Female:* (n = 18). L = 1209 (981-1556)  $\mu\text{m}$ ; a = 32 (25-38); b = 8 (6-9.8); c = 22 (19-29); V% = 54 (49-58); stylet length = 28 (27-29)  $\mu\text{m}$ ; tail length = 56 (41-70)  $\mu\text{m}$ ; distance between anterior end of body and centre of median oesophageal bulb = 84 (77-88)  $\mu\text{m}$ ; oesophageal length = 169 (154-177)  $\mu\text{m}$ ; DGO = 8.6 (5.3-10.6)  $\mu\text{m}$ ; body annuli width = 1.9 (1.5-2.2)  $\mu\text{m}$ .

*Description:* body C-shaped. Lip region hemispherical, distinctly set off with 7-8 annuli. In face view long slit-like

amphidial apertures are seen on the lateral edges of the rounded labial disc, but the first lip annulus is not divided in sectors in our specimens. Dorsal oesophageal gland opening 8.6 (5.3-10.6)  $\mu\text{m}$  behind stylet base. Excretory pore at 137 (98-163)  $\mu\text{m}$  at level of oesophago-intestinal valve. Oesophageal glands ventrally overlap the intestine 1-1/2 times body width. Lateral field with four incisures, outer band crenate or incompletely areolated (Figs. 2A, B). Tail length 1.8 (1.5-2.4) anal body width, more curved dorsally, terminus hemispherical and striated.

Male not found.

*Habitat and locality:* natural habitat at Nangota, Liberia.

*Remarks:* *Aphasmatylenchus* is known only from West Africa and contains the type species *A. nigeriensis*, described by Sher, 1965 from soil around roots of *Theobroma cacao* and *Hevea brasiliensis* in Nigeria; *A. straturatus* Germani, 1970 and *A. variabilis* Germani and Luc, 1984 occurred around roots of *Arachis hypogea* in Upper Volta and Senegal respectively. This is the first record of *Aphasmatylenchus* from Liberia. General morphology of our specimens is similar to Sher's 1965 description, the only exception being the appearance of the first lip annulus which is not divided into sectors in our specimens, whereas it is divided into six sectors in the original description.

#### Description of the population of *SCUTELLONEMA CLATHRICAUDATUM* Whitehead, 1959 from Sierra Leone (Figs. 3, 4)

*Female:* (n = 15). L = 771 (707-850)  $\mu\text{m}$ ; a = 23 (21-24); b = 6.8 (6-7.8); c = 47 (39-60); V% = 58 (51-64); stylet

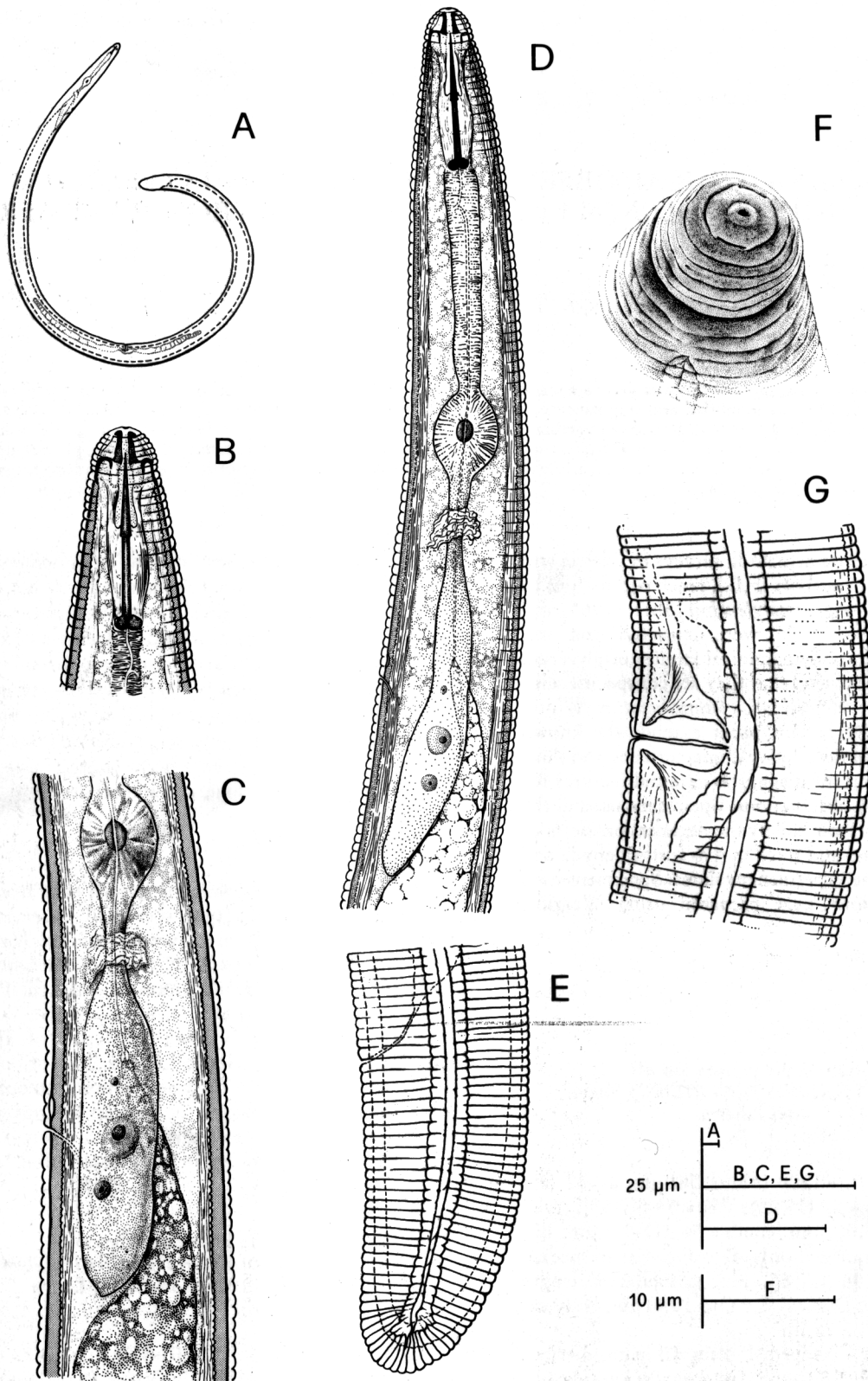


Fig. 1 - *Aphasmatylenchus nigriensis*, female: A) entire body; B, C, D) anterior and oesophageal region; E) posterior end; F) face view; G) surface view at vulva.

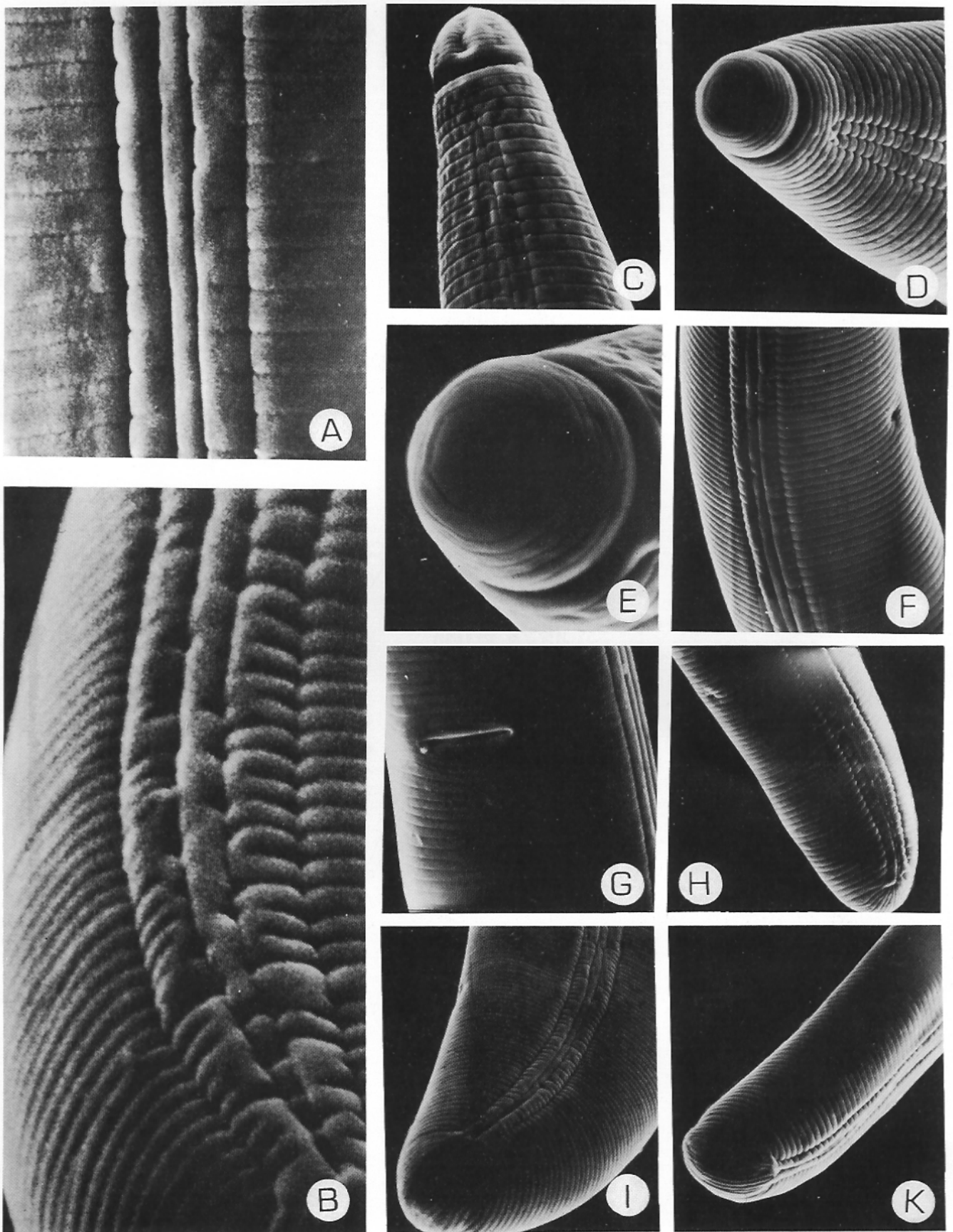


Fig. 2 - SEM micrographs of *Aphasmatylenchus nigriensis* female: A, B) lateral field at mid-body and posterior body portion; C, D, E) anterior end; G) vulva ventral view; H, I, K) posterior body portion in latero-ventral, lateral and ventral view.

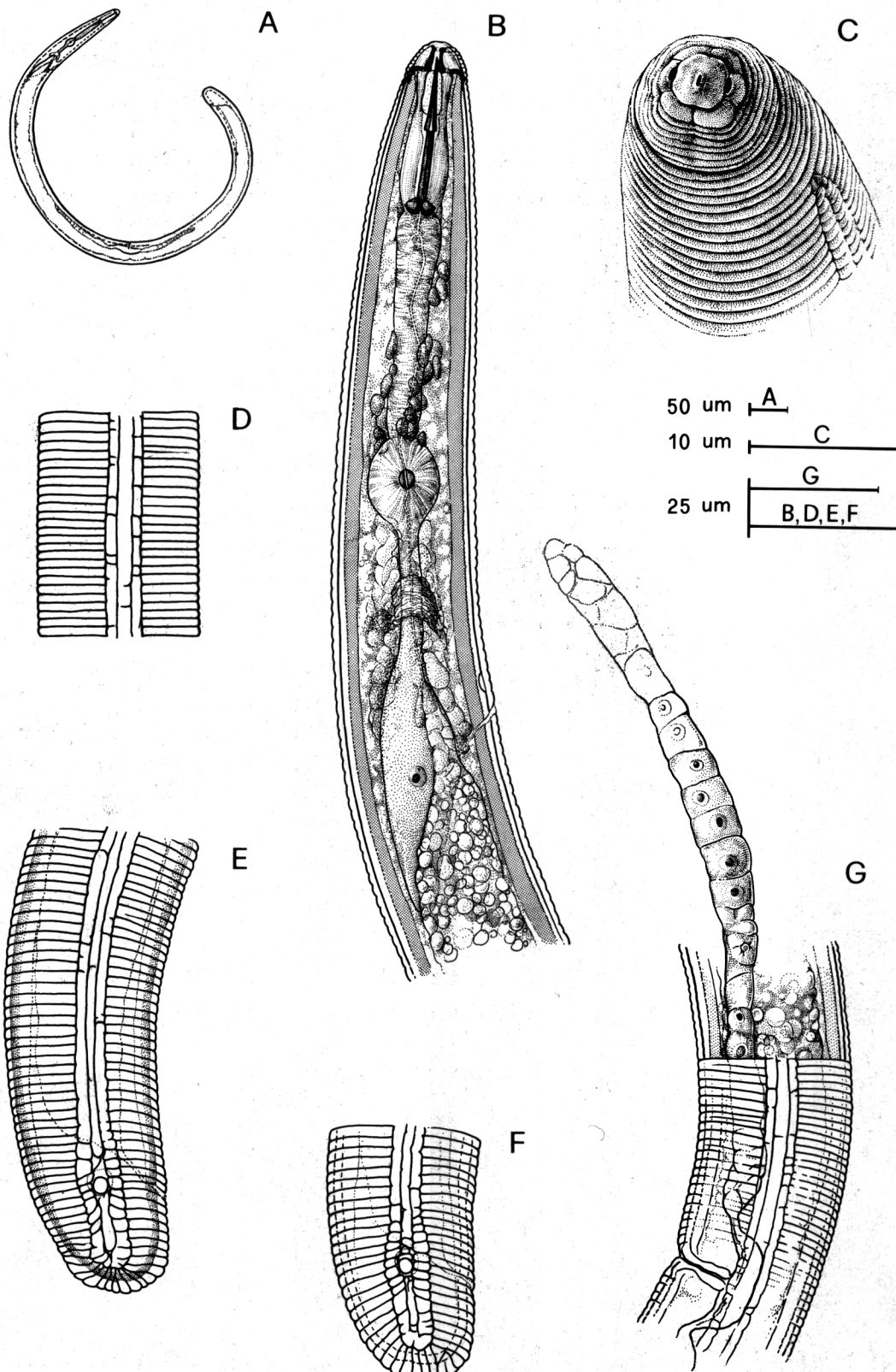


Fig. 3 - *Scutellonema clathricaudatum* female: A) entire body; B) anterior end; C) face view; D) surface view at mid-body; E, F) posterior body portion; G) ovary.

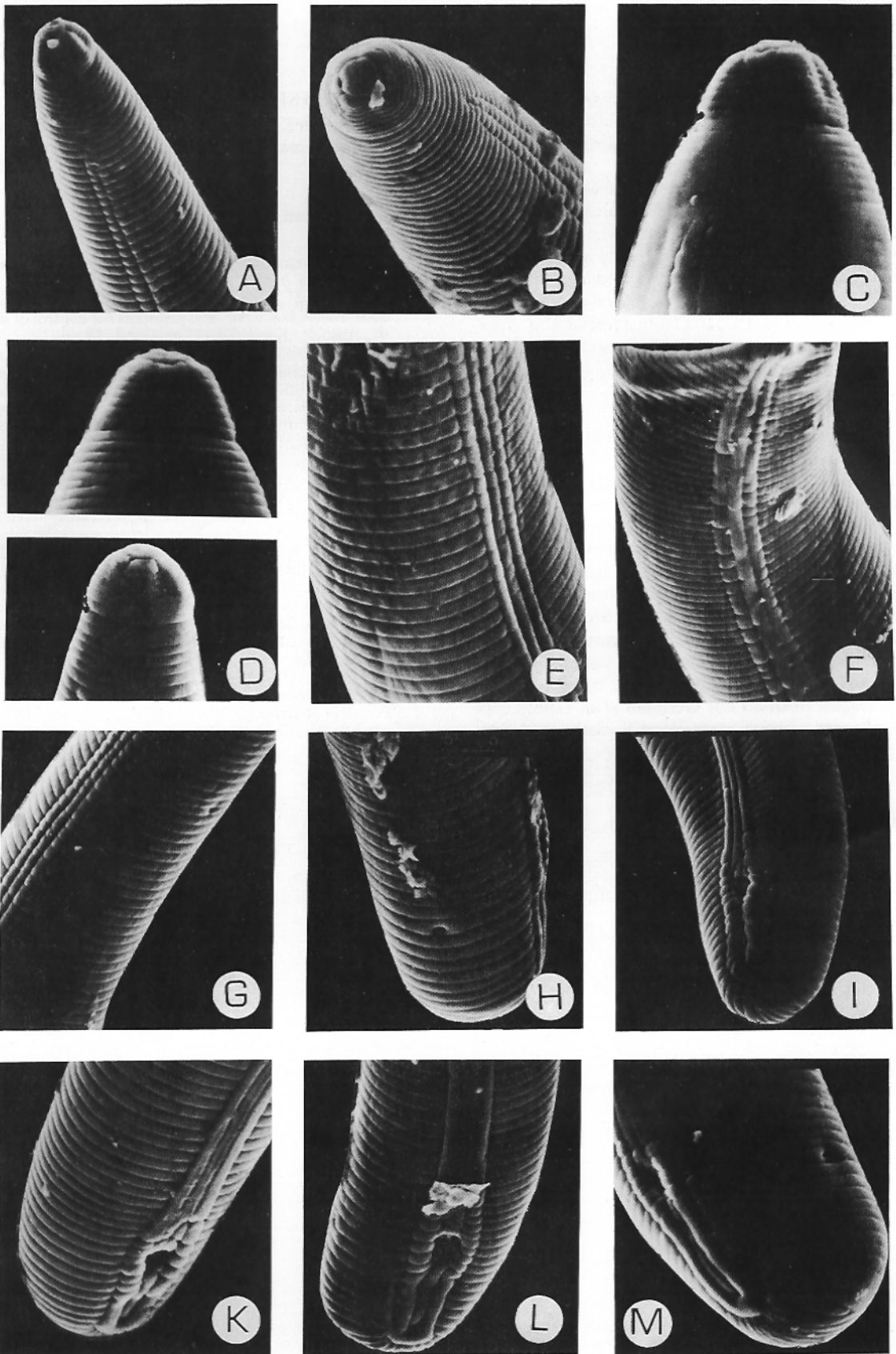


Fig. 4 - SEM micrographs of *Scutellonema clathricaudatum*: A-D) anterior end, profile, face or lateral view; E, F, G) cuticular surface ornamentations; H-M) posterior body portions in ventral or lateral view.

length = 26 (25-29)  $\mu\text{m}$ ; distance between anterior end of body and centre of median oesophageal bulb = 74 (68-80)  $\mu\text{m}$ ; oesophageal length = 116 (104-143)  $\mu\text{m}$ ; tail length = 17 (14-20)  $\mu\text{m}$ ; DGO = 5.8 (5-6.8)  $\mu\text{m}$ .

*Description:* body C-shaped when relaxed. Lip region hemispherical with 8-9 annuli. Basal annulus without longitudinal striations. Body annuli 1.7 (1.4-1.9)  $\mu\text{m}$  wide at mid-body. Lateral field areolated anteriorly and at level of scutellum. Stylet well developed with rounded basal knobs 5.1 (4.5-5.8)  $\mu\text{m}$  wide. Excretory pore at level of oesophago-intestinal valve 120 (111-132)  $\mu\text{m}$  from anterior end. Spermatheca absent. Scutella located in anal region. Scutellum diameter 3.3 (2.7-3.7)  $\mu\text{m}$ . Tail rounded 17 (14-20)  $\mu\text{m}$  in length with 10-13 annuli.

Male not found.

*Habitat and locality.* rhizosphere of tomato at Koinadugu (Kabala) Sierra Leone.

*Remarks:* Measurements as well as general morphology closely conforms with original description (Whitehead, 1959) and populations reported from other African countries (Germani *et al*, 1985). Originally it was described from several countries in Africa: Congo, Nigeria and Ivory Coast. The only report outwith Africa is from Kazakhstan in the Soviet Union (Bazarbekov, 1970). Sher (1964) differentiated *S. aberrans* from *S. clathricaudatum* by the shape of lip region. Ali *et al* (1963) described a population of *S. clathricaudatum* from Zaire as intermediate between *S. aberrans* and *S. clathricaudatum* but Germani *et al*, (1985) considered *S. aberrans* a junior synonym of *S. clathricaudatum*,

after LM and SEM observations made on type populations of both species. This is the first report of *S. clathricaudatum* from Sierra Leone.

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