A SCANNING ELECTRON MICROSCOPE STUDY OF SOME SPECIES OF TERRESTRIAL NEMATODES FROM SPITZBERGEN

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Three species of the family Cephalobidae and one species of the family Plectidae sampled on Spitzbergen were studied by scanning electron microscopy, which provided additional information on external morphology. Acrobeloides tricornis (Thorne, 1925) Thorne, 1937 was found to possess five incisures in the lateral field, rendering its differentiation from some other species of the genus less clear. The lip region morphology of Chiloplacus saccatus Loof, 1971 was found to be very similar to that of Acrobelophis minimus (Thorne, 1925) Andrássy, 1984 and the validity of the latter genus is discussed. Eucephalobus arcticus Loof, 1971 was found to possess cephalic and labial probolac and is proposed as a junior synonym of E. mucronatus (Kozłowska & Roguska-Wasilewska, 1963) Andrássy, 1967. The complex anterior structure of Ereptonema arcticum Loof, 1971 was compared with that of Tylorhynchus auriculatus (Bütschli, 1873) Anderson, 1966.

Keywords: morphology, taxonomy, Acrobeloides tricornis, Chiloplacus saccatus, Eucephalobus arcticus, Ereptonema arcticum.

Loof (1971) described new species of nematodes from Spitzbergen and also made new records for many known species. Loof’s (1971) survey was built on an extensive collection by Mr. H. van Rossen in July 1965 in the western part of the island. Twenty years later, in July 1985, a smaller collection of soil samples from roughly the same area was made by Mr. G. Rudbäck. So far this collection has resulted in the description of a new nematode species apparently overlooked by Loof (Boström, 1987).

The aim of this paper is, with scanning electron microscopy (SEM), to increase information of the morphology of some species of nematodes described as new from Spitzbergen and one previously known. The taxonomic position of some of the species is also discussed.

MATERIALS AND METHODS

The western part of Spitzbergen, from Longyearbyen in the south to Amsterdamøya in the north, was sampled in July 1985. Twenty-four samples of loamy soil were collected with a small corer to about 6 cm depth and transferred to capped plastic tubes. They were transported to Sweden by air and subsequently extracted by a wet funnel method (Sohlenius, 1979).

The nematodes were killed by heat, fixed in cold TAF, transferred to glycerine by a slow evaporation method (Hooper, 1970), and mounted on slides for light microscopy (LM) as described in Boström & Gydemo (1983).
For SEM, specimens were postfixed in 1% osmium tetroxide in redistilled water for one hour. They were dehydrated in an acetone/redistilled water series to pure acetone, critical point dried, mounted on stubs, coated with gold and examined in the SEM as described by Boström & Gydemo (1983).

The nematodes were identified to species level under the LM. Measurements and ratios are given as: $\bar{x}$ (SE) range; $a_1$ is the width/total body length ratio anterior to vulva, $a_2$ posterior to vulva. $T/ABW$ is the tail length/anal body width ratio, $T_e$ is the length of testis in % of total body length.

**OBSERVATIONS**

**Family Cephalobidae**

*Acrobeloides tricornis* (Thorne, 1925) Thorne, 1937

(Fig. 1A-B)

5 ♀ ♂ (Spitzbergen): $L = 464 (9)$ 439-485 µm; $a = 18 (1)$ 17-20; $b = 3.8 (0.1)$ 3.6-4.0; $c = 20 (0.3)$ 19-21; $V = 64.5 (0.2)$ 64-65; $T/ABW = 1.4 (0.04)$ 1.3-1.5.

8 ♀ ♂ (material from Thorne’s collection): $L = 412 (6)$ 383-432 µm; $a = 14 (1)$ 12-16 (some specimens flattened); $b = 3.5 (0.05)$ 3.3-3.7; $c = 20 (0.4)$ 18-21; $V = 66 (0.5)$ 64-68; $T/ABW = 1.4 (0.04)$ 1.2-1.5.

The specimens agree well with the original description by Thorne (1925) and the additional information given in Loof (1971) save that the number of incisures in the lateral field was found to be five (instead of three) in nonglycerine infiltrated specimens and in the SEM (Fig. 1B). The four outer incisures appear to end at various distances between anus and phasmid, while the middle one extends to tail terminus. The three pairs of cephalic probolae bear elevated margins, often developed into seta-like processes, next to the primary cephalic axils. The labial probolae (unfortunately somewhat bent in the preparation) are proximally conoid and more or less cylindroid in the setose apical part (Fig. 1A). They are joined basally by tangential ridges.

*Chiloplacus saccatus* Loof, 1971

(Fig. 1C-F)

18 ♀ ♂: $L = 725 (20)$ 627-912 µm; $a_1 = 28 (0.5)$ 26-31; $a_2 = 31 (0.5)$ 27-35; $b = 4.1 (0.05)$ 3.9-4.5; $c = 19 (0.3)$ 16-21; $V = 67 (0.3)$ 65-68; $T/ABW = 2.1 (0.03)$ 2.0-2.5.

This species was common in the samples. The specimens agree with Loof’s (1971) description and are easily identified from the conspicuous post-uterine branch (PUB) (57-82 µm long in the above specimens). True cephalic probolae (“labial probolae” of Loof (1971)) are present, amalgamated into three pairs with deep primary cephalic axils demarcated by elevated borders (Fig. 1C). Labial probolae (“prelabial probolae” of Loof (1971)) bifurcate about 1/4-1/3