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Morphology of *Ascarops dentata* (Nematoda : Spirocercidae) male by Scanning Electron Microscopy

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Abstract

Scanning electron microscopy of adult *Ascarops dentata* male, a parasite in the intestine of pigs, provided new informations on the topography of cephalic papillae, amphids, phasmids, cuticular structures at the posteroventral region, and differences in the cuticular striations of the body.

Key words: *Ascarops dentata,* Nematoda, male worm, ultrastructure, pigs

Introduction

Ascarops dentata (Linstow, 1904) Alicata and McIntosh, 1933 is a common parasite of domestic pigs (*Sus scrofa domestica* L.) in India (Soulsby, 1982). Its morphological characters have been described previously using light microscopy by López-Neyra (1951). In the present communication, we describe in detail the surface fine structure of male *A. dentata* with the aid of scanning electron microscopy.

Materials and Methods

Adult males of *A. dentata* were collected from pigs slaughtered at local abattoirs and were fixed in 5% buffered formalin. Their body was cut into pieces of the length of 5 to 10 mm and prepared for examination as described elsewhere (Tandon and Yadav, 1991). The specimens were viewed under a JSM 35 CF (Jeol) scanning electron microscope.

Results

The mouth possesses two trilobed pseudolips. Of the outer two lobes (Fig. 1, black arrow), each bears a dome-shaped submedian cephalic papilla (Fig. 2, double arrow) with smooth tips; the middle lobe (Fig. 1, black arrowhead) has a well-developed buccal tooth (Fig. 2, arrowhead) bulging into the buccal cavity. The amphid (Fig. 1, white arrow) opens into a prominent large circular pit behind the buccal tooth. A minute pore-like opening (Fig. 2, arrow) is noticeable adjacent to the papillae on each pseudolip. The body cuticle has transverse striations throughout its length which are not as wide anteriorly as in the posterior region of the body (Figs. 3, 4, 5). A minute phasmidial pore (Fig. 6, arrowhead) is evident on the lateral aspect of the caudal extremity. The caudal ala (Fig. 6, asterisk) is extended markedly to the right side of the tail. Several rows of scale-like cuticular structures (Figs. 7, 8, 9) are present anterior to the cloaca. These structures are aggregated densely near the cloacal opening. More anteriad, they exhibit a coarser arrangement with their bases overlapping sideways and distal edges forming smooth narrow surfaces (Figs. 7, 8, 9). The circumcloacal region appears as a smooth disc (Fig. 7, arrow). The alate spicules are unequal; the right spicule is curved and much shorter than the left one (Fig. 7).

Discussion

The genus *Ascarops* Beneden, 1873 comprises

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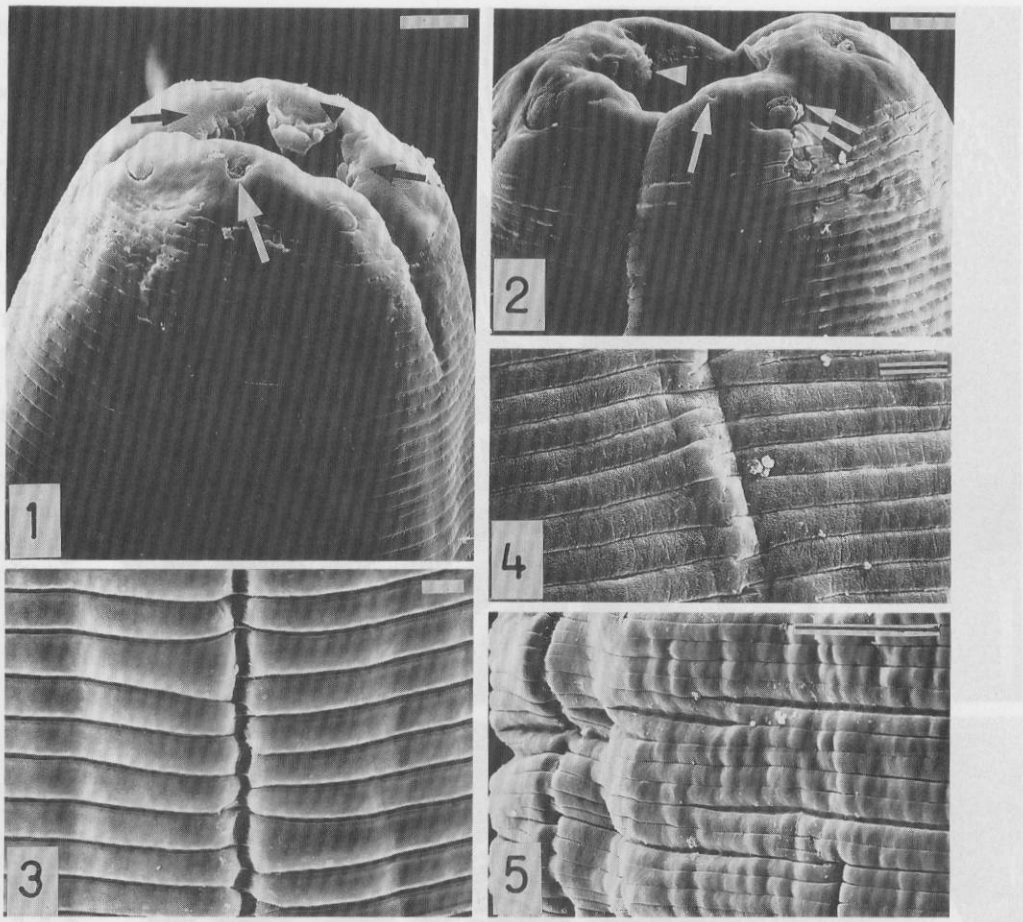

Figs. 1–9 Scanning electron micrographs of *Ascarops dentata* (male)
Fig. 1 Anterior end, illustrating outer (black arrow) and middle (black arrowhead) lobes of pseudolips, and an amphidial opening (white arrow). Bar = 10 μm.
Fig. 2 Anterior end at different angle, showing a cephalic papilla (double arrow), buccal tooth (arrowhead) and a minute pore-like opening (arrow). Bar = 10 μm.
Figs. 3–5 Patterns of body cuticle
3 anterior extremity,
4 the middle region,
5 the posterior region. Bar = 100 μm.

eight species to date, and there is no information available concerning the surface fine topography of any species of the genus. The microtopographic features of *A. dentata* as described above correspond to the previous light microscopic descriptions (López-Neyra, 1951) and provide some new informations of the patterns of body cuticle and topography of cephalic papillae, amphids, phasmids and posteroventral region.

When compared to other members of the family Spirocercidae, the morphology of the anterior end of *A. dentata* appears somewhat similar to *Streptopharagus pigmentatus* but quite different from *Cyathospirura seurati*. *S. pigmentatus* has six teeth that arise inside the buccal cavity but the pseudolips, the cephalic papillae and the amphids match with those of *A. dentata*. In *C. seurati* there are present eight teeth, pseudolips

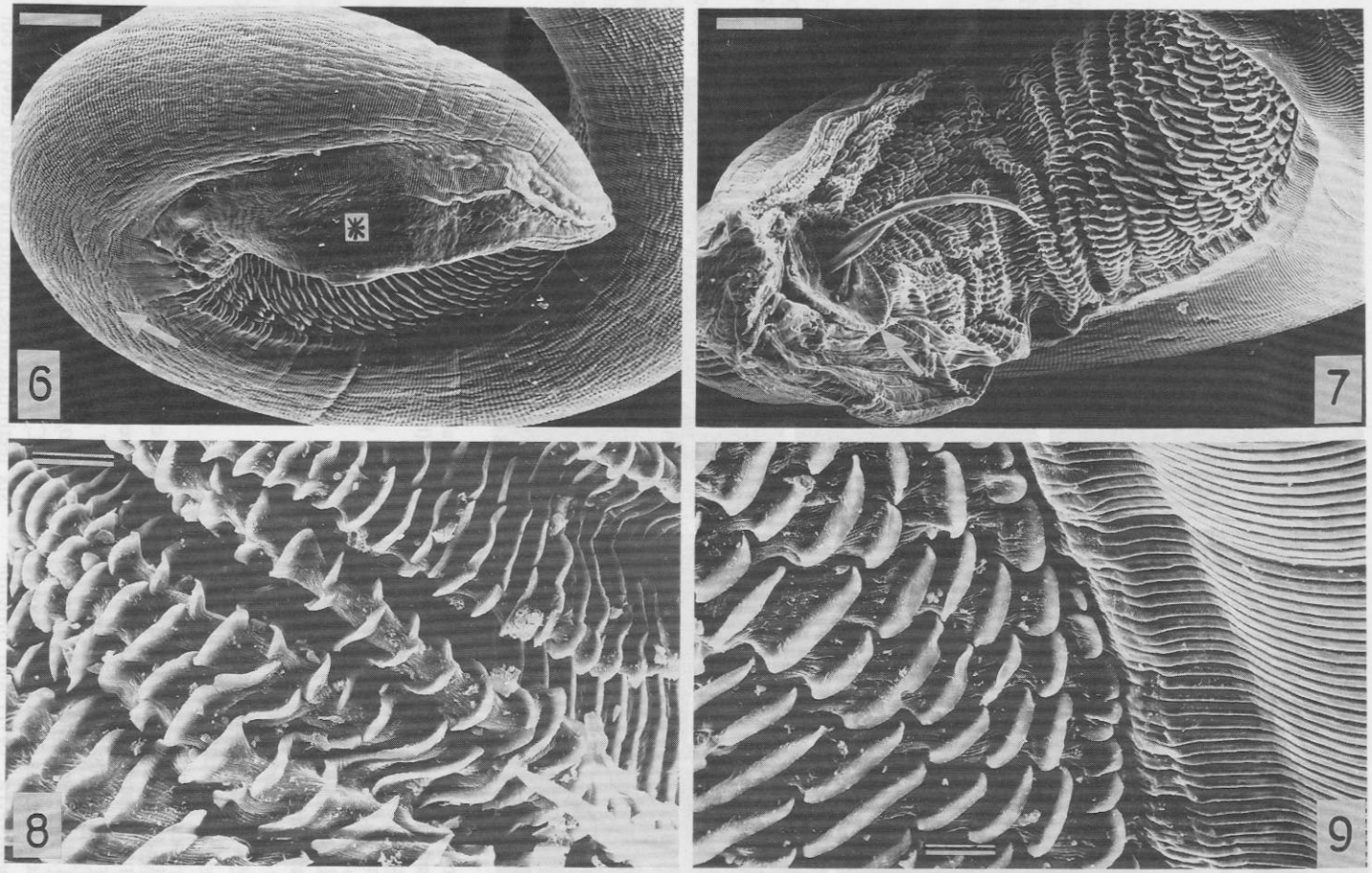

Fig. 6 Caudal end, showing a phasmidial pore (arrowhead) and changing pattern of cuticle posteriad; note that the caudal ala is extended to the right side of the tail. Bar = 100 μm.

Fig. 7 Posteroventral region illustrating rows of scale-like cuticular structures; note the right spicule is bent on the left. The arrow shows a smooth disc surrounding the cloaca. Bar = 30 μm.

Figs. 8, 9 Scale-like cuticular structures in closer views. Bar = 30 μm.

are trilobed and the amphidial opening appears oblong (Gibbons, 1986). Also, the minute pore-like opening observed at the pseudolip of *A. dentata* was not discernible in either of these species. This opening, however, is similar to that of *Physaloptera felidis* (Superfamily Physalopteroidea) in location and shape (Marchiondo and Sawyer, 1978). The cuticle of *A. dentata* has a series of transverse striations which have not been described previously for any spirocercid species. The male tail exhibits a variety of cuticular ornamentations; ornamentations similar to those present on the postero-ventral region of *A. dentata* have also been elaborated in *C. seurati* by Gibbons (1986). The curved right spicule of *A. dentata* may have a gubernaculum-like function in guiding the left spicule (Crites and Overstreet, 1991).

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