

Wall Structure of the Mature Female and Cystoid Body of *Meloidoderita kirjanovae* (Nematoda: Criconematoidea)¹

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The life history of the genus *Meloidoderita*, as observed under the light microscope, has been described from populations found in Armenia, USSR (3); Maryland, USA (1); and Upper Galilee, Israel (2). The unique feature of this nematode is the transformation of the uterus into a cystoid structure bordered by a rough sclerotized wall. Concomitant with the transformation, the body cuticle disintegrates and is shed. In the present paper, we report some scanning electron microscope observations of the surface structure of the adult female

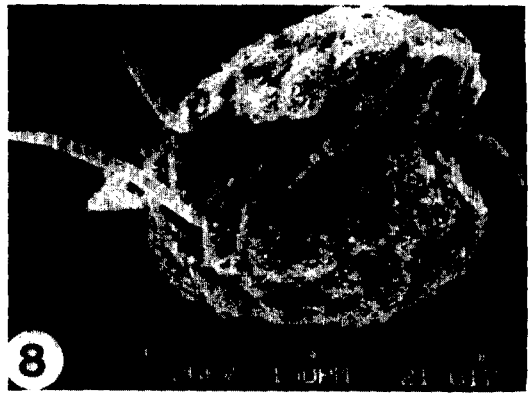
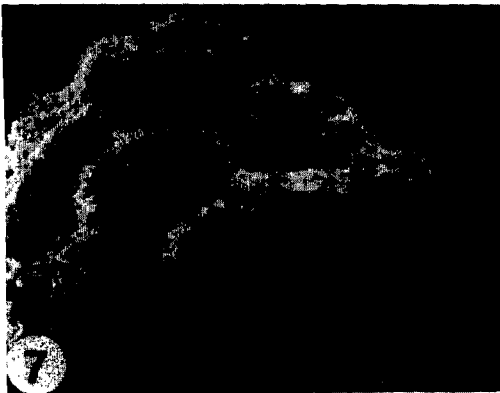
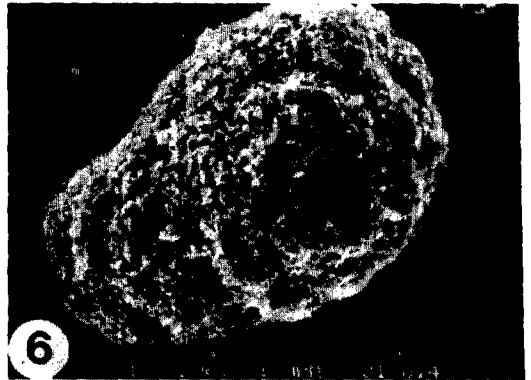
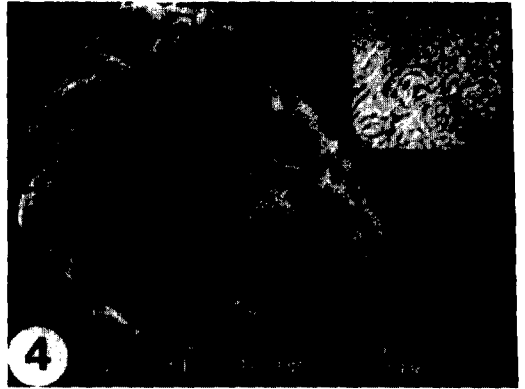
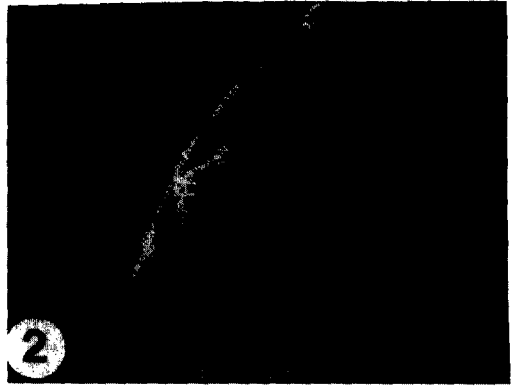
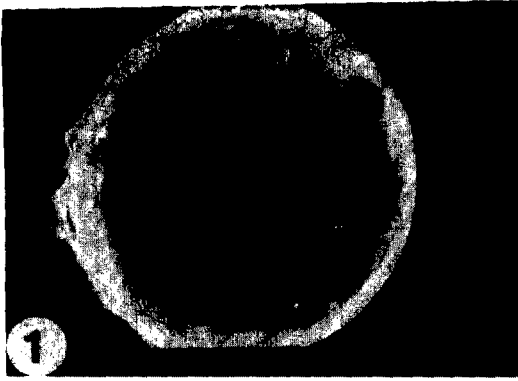
and the cystoid body wall in the Israeli population of *Meloidoderita*, which has now been identified as *M. kirjanovae* Poghossian, 1966.

Nematodes in this study were reared aseptically for up to 3 months on seedlings of *Mentha longifolia* (L.) Huds., growing in a 1.5% nutrient (Hoagland) agar. Mature females and cystoid bodies were removed at intervals and prepared for microscopic study. Females were fixed in 2% glutaraldehyde in 0.05 M phosphate buffer, pH 7.1 for 24 h, and postfixed in 2% osmium tetroxide overnight at 4 C. They were dehydrated in an ethanol series, transferred to liquid nitrogen, mounted on stubs, and coated with gold palladium. Cystoid bodies were placed directly on stubs and gold-coated without prior processing. The specimens were viewed and photographed

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with a Cambridge Stereoscan S-180 electron microscope.

The pear-shaped adult females, showing typical anterior (lip) and posterior (vulval) terminal projections, were covered by a relatively smooth cuticle (Figs. 1-3). The head consisted of 2-3 cuticular rings (Fig. 2), as reported by Kirjanova and Poghossian (3), and was usually tilted somewhat to one side. A rough uterine wall of the cystoid body was clearly visible (Figs. 4-6) beneath the cuticle or exposed after disintegration of the cuticle. This wall, which showed a characteristic surface network pattern in an *en face* view under the light microscope (Fig. 4), actually consisted of protruding spikelike structures (Fig. 5) and irregularly covered the mass of eggs within it. Outlines of the eggs situated immediately beneath the wall were often clearly visible. Cystoid bodies did not appear to have any visible permanently situated openings, but hatching juveniles appeared to leave through

points in the posterior section of the structure (Fig. 7). Cystoid bodies artificially ruptured were invariably found to contain empty egg shells and hatched juveniles (Fig. 8). Unlike in the population described from Maryland (1), most juveniles emanating from within cystoid bodies in our population remained motile, although they did show a higher mortality rate than did the juveniles originating from egg sacs.

LITERATURE CITED

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Figs. 1-8. SEM photographs of adult female and cystoid body of *Meloidoderita kirjanovae*. 1) Entire female. 2) Anterior end of female showing head region and protruding stylet. 3) Posterior end of female with projecting vulva. 4) Female with cuticle partially peeled off. Inset: network pattern of cystoid body wall as viewed under light microscope. 5) Detail of rough subcuticular wall of cystoid body, composed of spikelike structures. 6) Complete cystoid body. 7) Juveniles emerging from cystoid body. 8) Ruptured cystoid body, showing interior containing hatched juveniles.