

SHORT COMMUNICATIONSAn Instance of Male and Young Female Development of the Reniform Nematode (*Rotylenchulus* sp.) within the Egg-Shell (Tylenchida: Hoplolaimidae)<sup>1</sup>

During a series of studies on the reniform nematodes (*Rotylenchulus* spp.) in Japan, it was found that the adult males, having distinct spicules, or the young females occasionally appear in the egg inside or outside of the adult female bodies reared on the tomato plant under the green house condition.

This nematode was originally collected from a field of sweet potato located at Mizuho-mura, Nagasaki Pref., in October 1962. After a great many of the nematodes (young females and adult males) were extracted from the soil sample by means of SEINHORST's elutriator they were inoculated into tomato root (tomato variety Fukuju No. 2) cultured in a small pot filled with sand in green house. Among several adult females grown in the pot, some of the slightly brownish females were contained. It was generally observed that these females produced somewhat smaller number of eggs in the egg sac than many other ordinary females with whitish or yellowish body.

The observations of the females under the dissecting and the ordinary microscopes indicated that these brownish adults usually have a small number of eggs in egg sacs around their body and several eggs within the body. Most of such eggs in the body were found to have undergone cleavage and embryonized. As shown in Fig. 1, A and B, in some of these eggs the second stage larvae developed and the males having spicules were found as well. In other cases the egg batches produced by usual females were incubated in a small capped vial with a drop of water at 25°C for about 30 days, and there occurred many eggs in which the males were provided with spicules and young females having a well developed stout valve in the median oesophageal bulb were observed (Fig. 1, D and E). The nematodes derived from these eggs frequently seemed abnormal in shape, with the body folds, (Fig. 1, C).

It is observed that the nematodes of the genus *Rotylenchulus*, in which at least two species have so far been known in Japan (Nakasono, 1963), generally moult four times and the first moulting occurs in the egg of both the species similar to other plant parasitic nematodes. It may be added, that the second stage larva of one species, described in this paper, which morphologically resembles *R. reniformis*, develops to a young female or an adult male in water without any host plants, after completing all the moultings (Nakasono, 1964; Nakasono, unpublished), although LINFORD and OLIVEIRA (1940) pointed out that the first moult in the egg did not take place in *R. reniformis* of Hawaii.

The male and young female found in adult body or in the egg incubated in water, as shown above, might have carried out all the four moults in the egg, that remained unhatched. The reason for the occurrence of such phenomenon is unknown and also whether or not this is a normal pattern of life cycle of the nematode is not clear. LINFORD and OLIVEIRA (1940) and BIRCHFIELD (1962) did not remark the fact above mentioned in their studies on the life cycle of *R. reniformis* in Hawaii and Louisiana in the United States.

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Kazutoshi NAKASONO

*Division of Entomology,  
 National Institute of Agricultural Sciences,  
 Nishigahara, Kita-ku, Tokyo, Japan*

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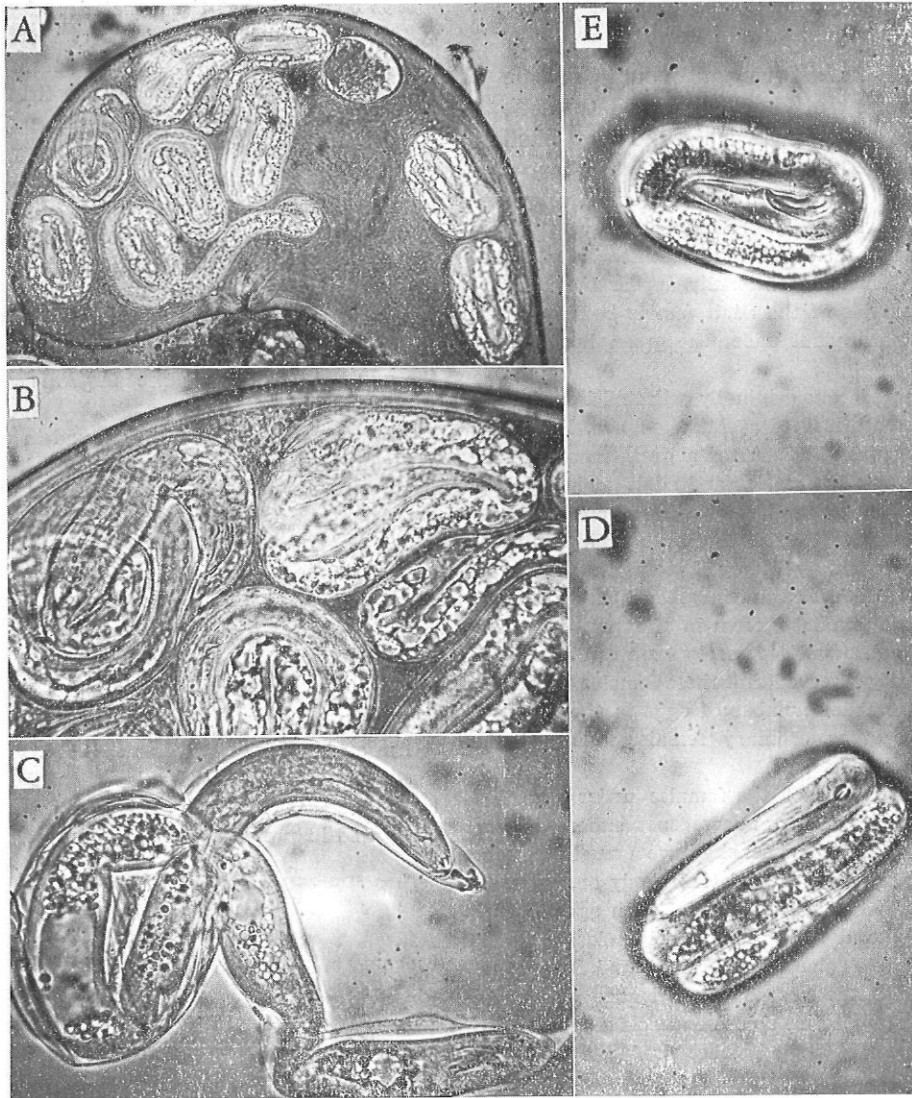


Fig. 1. An adult female body containing eggs in which the male and the second stage larvae are existing, and the male and female developed in the egg, outside of adult body. A: adult female; B: enlarged male and second stage larvae in adult body; C: a male hatched artificially, presenting the folds of the body; D and E: a young female and a male in the egg incubated in water, respectively. (A and B fixed specimen in 45% solution of acetic acid, slightly pressed; C, D and E alive ones in water)