

**On a new species of Genus *Protrellatus*
Farooqui, 1970 from insect host *Gryllus*
domesticus at Meerut**

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Abstract

A new species of Genus Protrellatus Farooqui, 1970 is described from the intestine of insect host Gryllus domesticus at Meerut.

Keywords - *Insect parasitic nematode, Protrellatus gryllusi, Gryllus domesticus*

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Introduction

During the course of study of insect host *Gryllus domesticus* at Meerut, the author examined seven specimen but found only one infected with *Protrellatus gryllusi* belonging to the Genus *Protrellatus* Farooqui, 1970. On subsequent study the present form appears new to us and described herein as such.

Materials and Methods

For the present investigation insects were collected from store houses, kitchen stores and toilets, from the different localities of Meerut. The specimens were brought to the laboratory and identified with the help of classical works of Imms (1960) and Davies (1977). The insects were anaesthetized with the help of ether. Subsequently, a thorough examination of their alimentary canal and the whole body was made under stereoscopic binocular microscope. The nematode parasites were picked up with the help of fine glass dropper.

After removal from the host, the parasites were washed in normal saline and fixed either in A.F.A. fixative or in hot 70% alcohol. For the study of morphology, parasites were cleared in glycerine or lactophenol. The diagrams were made with the help of camera lucida to support the morphological observations.

Result

The body of the worm is cylindrical, elongated and of medium size with rounded anterior and posterior ends in case of female, whereas in case of male, it is rounded anteriorly and pointed posteriorly. Cuticular striations are feebly developed.

Female

The females are very long and exhibit very marked sexual dimorphism. The body is fairly cylindrical from behind the region of vulva. The body of female measures 4560 – 5960 μ in length and 70 – 160 μ in width. The mouth is triangular in outline and surrounded by four pairs of papillae and a pair of laterally situated amphids. The oesophagus has a corpus measuring 410 – 450 μ in length and 50 – 70 μ in width. The corpus directly leads into a rounded vulvular bulb measuring 110 – 130 μ in diameter. The anus is situated at 220 – 240 μ from posterior end of body. A few pairs of unicellular rectal glands are also present around the rectum. The tail is short, bluntly rounded and is equipped with a pair of triangular projections which are limited to the pulp region of the body. The excretory pore is not visible. Nerve ring is well developed situated at 110 – 140 μ distance from anterior end of the body. The vulva opens almost at the middle of the corpus located at 250 – 280 μ from anterior end of body. Vulva is highly muscularized, slightly protruded beyond the body and

is possibly equipped with vaginal plug like structure A. Vagina is posteriorly directed. The ovaries start in posterior region of the body. The oviduct proceeds anteriorly and joins the uterus. The uterus is tightly packed with eggs.

Male The male measures 3840 – 4860 μ in length and 500 – 600 μ in maximum width. The nerve ring and excretory pore are at the same level and situated at 400 - 600 μ from the head end. The oesophagus is not divisible into three regions distinctly however, anterior cylindrical part and posterior vulvular part is quite distinct. The anterior cylindrical

part measures 560 – 780 μ whereas the posterior vulvular bulb measures 80 – 160 μ in diameter. The testes lie in the posterior third part of body. The tail end is sharply attenuated from the body and tapers into a fine tip measuring 420 – 450 μ . The cloaca is surrounded by eight pairs of papillae, out of which three pairs are pre-cloacal, two pairs are ad-cloacal and three pairs are post – cloacal in position. Among the three pre- cloacal papillae, one pair is somewhat isolated. The spicule is single, stout measuring 80 – 90 μ in length.

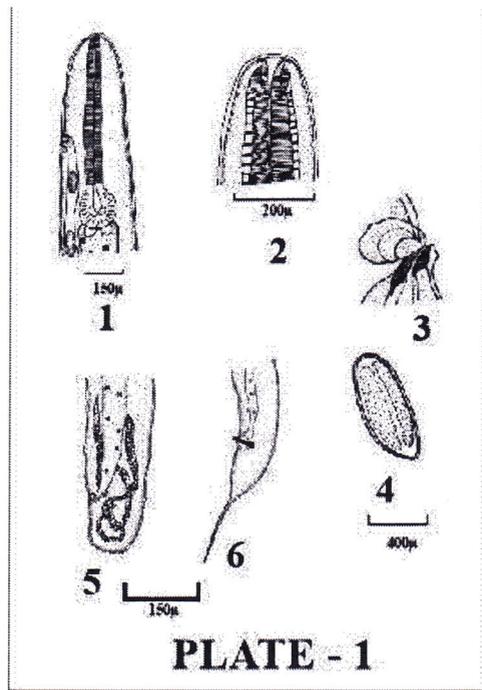


Plate -1: 1. *Protrellatus gryllusi* n. sp. Anterior end of female 2. Anterior end of oesophagus enlarged 3. Vulva enlarged 4. Egg enlarged 5. Posterior end of female enlarged 6. Posterior end of male enlarged

Discussion

Chitwood (1932) proposed a subfamily Protrelloidae under the family Thelastomatidae on the character of the vulva opening in oesophageal region of the body. But Basir (1956) abolished this subfamily on contention that the position of vulva is variable from middle of the body to near the tail or towards the anterior end. Basir (1956) pointed out that *Hammerschmidtella* Chitwood, 1932 and *Suifunema* Chitwood, 1932 are the two genera in which the vulva is located in the anterior

region of the body, of course posterior to the oesophageal bulb. Farooqui (1970) reviewed the literature and justified the creation of subfamily Protrelloidae by Chitwood (1932). This subfamily includes in all three genera till 1970 viz.,
 1. *Protrelleta* Chitwood, 1932
 2. *Protrelloides* Chitwood, 1932.
 3. *Protrellus* Cobb, 1920

He further added another genus to this subfamily viz., *Protrellatus* Farooqui, 1970. The detailed comparison of all the four genera are shown in the following table:

Table: Showing detailed comparison of different genera of subfamily Protrelloidae

S. No.	Characters	<i>Protrelleta</i> Chitwood, 1932	<i>Protrelloides</i> Chitwood, 1932	<i>Protrellus</i> Cobb, 1920	<i>Protrellatus</i> Farooqui, 1970
1.	Mouth surrounded by tri lobed circular oral elevation	Absent	Present	Absent	Absent
2.	Head set off from the body	Set off	Continuous	Continuous	Set off from above the vulva
3.	Isthmus	Short	Indistinct	Present	Indistinct
4.	Vulva	Near or posterior to the middle of oesophagus	Anterior to the base of oesophagus	Anterior to the base of oesophagus	Very close to the head end
5.	Eggs	Without cuticular crest	Cuticular grooves present	Crest present	Crest present
6.	Tail of female	Attenuated	Conical attenuated	Conical	Round with two cuticular wing like projections
7.	Spicules	Absent	Present	Present	Present
8.	Caudal Papillae	Two pairs	No papillae observed	Two-Three pairs	Eight pairs

Farooqui (1970) appears to be fully justified for reviving the subfamily Protrelloidinae and establishing a new genus *Protrellatus*.

To the best of my knowledge, so far three species are known under the genus *Protrellatus* viz.,

1. *Protrellatus alli* Farooqui, 1970 from *Gryllus domesticus* at Aurangabad, Maharashtra.
2. *Protrellatus murtii* Vijayalakshmi and Khan, 1981 from *Gryllus domesticus* at New Delhi.
3. *Protrellatus indica* Tewari and Chaudhary, 1985 from *Gryllus domesticus* at Meerut.

The present form differs from all the three known species in having little posteriorly seated vulva, presence of

rectal glands and vaginal plug in female. It is therefore, described as a new species viz., *P. gryllusi* n. sp. named after the host.

Moreover, the generic diagnosis of the worm is also amended in light of the present observation. Thelestomatidae, Protrelloidinae: Fairly large female and short male. Mouth is surrounded by eight labio papillae. Sexual dimorphism is well distinct. Oesophagus is divisible into anterior corpus and posterior vulvular bulb. Isthmus is indistinguishable. Vulva is very close to the anterior end of the body. Tail of the female is broad with rounded terminus having two cuticular wings like projections. Male tail may be filiform or blunt. Caudal papillae are 5-8 pairs. Eggs

**Key for the identification of various species of the
 Genus *Protrellatus* Farooqui, 1970**

1.	Bluntly rounded tail with five pairs of papillae and female tail with single rounded projection	---- <i>P. indica</i> Tiwari and Chaudhary, 1985
	Filiform tail in male with 8 pairs of papillae and female tail with 2 wing like projection	-----2
2	Eggs with crest	-----3
	Eggs without crest	----- <i>P. murtii</i> Vijayalakshmi and Khan, 1981
3	Rectal glands present, Vulva at middle of the oesophagus	----- <i>P. gryllusi</i> n. sp.
	Rectal glands absent, Vulva at anterior Fourth of oesophagus	----- <i>P. alli</i> Farooqui, 1970

are with well developed crest, parasitic
in house cricket *Gryllus domesticus*.

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