

## A List of the Insect Parasitic Nematodes of Meerut(U.P.)



### Zoology

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### ABSTRACT

A survey of insect parasitic nematodes carried out different localities of Meerut (U.P.) revealed the occurrence of over 14 species of nematodes belonging to the family Thelastomatidae and Oxyuridae. A list of such nematodes associated with various localities has been given.

Nematodes are a type of roundworm in the phylum Nematoda. This is a different order of animals from the segmented worms, such as earthworms and flatworms. Nematodes are abundant, particularly in soil. Many feed on bacteria, some attack plants, and others can be parasites of animals. However, each species is usually specific in its habits. insect parasitic nematodes. Nematodes constitute a compact group of lower invertebrates, highly diversified and most numerous multicellular animals on the earth. They are second to only insects in the number of individuals. At present about 15000 different species of nematodes have been documented by workers but the estimated numbers of existing species is supposed to be about  $5 \times 10^5$ .

In India, enthusiastic work in the field of nematology started only during the last 25 years. However, a limited work

on insect parasitic nematodes of the U.P.,India. Brief historical perspective of the growth and development of nematology in India have been reported by various authors from time to time like Prasad (1964), Swarup and koshy (1965), Sheshadari (1970) and swarup and Sheshadari (1974).

Basir monograph (1956) summarized the description of some important insect parasitic nematodes described from India upto 1955. It also includes the complete revision of the existing genera and species belonging to the families Thelastomatidae and Oxyuridae. Rao (1958) also tried to give a consolidated description of insect parasitic nematodes of peninsular part of India. The result of the qualitative survey is presented in the following table in which the insect inhabiting nematodes listed below.

TABLE -1. List of insect parasitic nematodes

Name of the species	Host	Locality
<i>Thlastoma basiri</i> Farooqui, 1970	Peripleneta americana	Meerut
<i>Hammerchmidtella indicus</i> Singh and Malti, 2003	Peripleneta americana	Meerut
<i>Thelastoma alli</i> farooqui, 1970 Singh and Malti, 2003	Peripleneta americana	Meerut
<i>Psilocephala gryllotalpae</i> Singh and Malti, 2003	<i>Gryllotalpa africana</i>	Meerut
<i>Gryllophila basiri</i> Singh and mali, 2003	<i>Gryllotalpa africana</i>	Meerut
<i>Binema atrophicaudata</i> Singh and mali 2003	<i>Gryllotalpa africana</i>	Meerut
<i>Binema ornata</i> (Travassos, 1925) Singh and Malti 2003	<i>Gryllotalpa africana</i>	Meerut
<i>Isobinema jairajpurii</i> Singh and Malti, 2003	<i>Gryllotalpa africana</i>	Meerut
<i>Chitwoodiella asiatica</i> Singh and Malti 2003	<i>Gryllotalpa africana</i>	Meerut
<i>Mirzaiella meerutensis</i> Singh and Malti, 2003	<i>Gryllotalpa africana</i>	Meerut
<i>Pseudonymus hydrophilic</i> (Galeb 1878, Sties and Hassall 1905) Singh and Malti 2004	<i>Gryllotalpa africana</i>	Meerut
<i>Leidynema orientalis</i> Singh and Malti, 2004	Aquatic beetle	Meerut
<i>Thubunaea impar</i> (Basir 1941)	Peripleneta americana	Meerut
<i>Leidynema appendiculata</i>	<i>Supella</i> sp.	Meerut
Chaudhary, et al.,	<i>Peripleneta americana</i>	Meerut

#### *Thlastoma basiri* Farooqui, 1970

Farooqui (1970) first of all described *T. alli* from intestine of *Spirostreptus* species at Aurangabad, Maharashtra. The specimens at disposal of writer exhibit some variation in organisms of various body structure and measurements. It is, therefore, briefly redescribed. The redescription is based on the fresh material collected by the author. Besides this, species of genus *Thelastoma* is being recorded for the first time from *Periplaneta americana*. Thus, it is a new host record.

#### *Hammerchmidtella indicus* Singh and Malti, 2003

The worms are small, mouth surrounded by eight sub-mesodermic labial papillae. Two amphids are also presents. Oesophagus consisting of an anterior corpus, a distinct isthmus, and a posterior valvular bulb. In female, posterior part of the corpus forms a distinct swelling in the form of a pseudo-bulb. The swelling is not as prominent as in the male. Excretory pore posterior to base of oesophagus. Alae are absent in both the sexes.

#### *Thelastoma alli* farooqui, 1970 Singh and Malti, 2003

Farooqui (1970) first of all described *T. alli* from intestine of *Spirostreptus* species at Aurangabad, Maharashtra. The specimens at disposal of writer exhibit some variation in organisms of various body structure and measurements. It is, therefore, briefly redescribed. The redescription is based on the fresh material collected by the author. Besides this, species of genus *Thelastoma* is being recorded for the first time from *Periplaneta americana*. Thus, it is a new host record.

#### *Psilocephala gryllotalpae* Singh and Malti, 2003

The worms are small. Males are with truncated tail and females are with attenuated tail without any terminal spike. The body cuticle is thin and bears transverse striations throughout the length. The head end is markedly set off from the body proper. The mouth is surrounded by eight labial papillae which are arranged in an inner and an outer circle of four papillae each. A pair of amphid is situated laterally. The excretory pore is located in post oesophageal region of the body, slightly anterior to equator.

***Gryllophila basiri* Singh and Malti, 2003**

The body of worms is cylindrical, female mouth opening sub-triangular, surrounded by a circumoral elevation and eight labial papillae. Outer cuticle of the body exhibit striations throughout the length in either sexes. Male tail is abruptly set off from the body proper. Excretory pore much behind the base of oesophagus.

***Binema atrophicaudata* Singh and Malti 2003**

Worms are small, spindle shaped. Mouth opening prismatic, surrounded by eight sub median labial papillae and a pair of amphids. Excretory pore, posterior to the base of oesophagus. Nerve ring at about middle of the corpus. Vulva post-equatorial in location. Tail of female is short, conical. Male tail is spike like structure.

***Binema ornata* (Travassos, 1925) Singh and Malti 2003**

Travassos (1925) described *Binema ornata* for the first time from *Gryllootalpa* sp., at Rio de Janeiro, Brazil. Subsequently, it was redescribed by Basir (1942), Serrano Sanchez (1947). But the worms at disposal of writer exhibit several variations from those described by Travassos (1925) and other workers besides measurements. It is, therefore, briefly redescribed as such. The redescription is based on the fresh material collected by the author.

***Isobinema jairajpurii* Singh and Malti, 2003**

Small worms. Mouth surrounded by eight submedian labial papillae. Buccal cavity sunken in the anterior part of corpus. Nerve ring at about middle of the oesophagus. Excretory pore, post oesophageal. Female tail, long and terminate in elongated flagellate caudal appendage. The male tail is larger than female and bear large caudal appendage. Body cuticular covering is alate

***Chitwoodiella asiatica* Singh and Malti 2003**

The worms are small. Cuticle annulated. Lateral alae present in both the sexes. The mouth is surrounded by three distinct but very small lips. One pair amphids are also present. Oesophagus long occupying about one third of the anterior body length and consisting of a long almost cylindrical corpus, a narrow isthmus and a bulb. Eggs elliptical, connected with each other and enveloped by filamentous threads arising in the form of a tuft from each pole. The eggs are segmented before deposition and laid in the form of a chain. Caudal papillae five pairs.

***Mirzaiella meerutensis* Singh and Malti, 2003**

The mouth is terminal situated on protruded cone of the body. It is surrounded by three lips. No sensory structures like papillae, amphids etc. could be observed. Males are much smaller than females. Entire cuticular covering of female body is annulated, but in case of male, the annulations are restricted to anterior part only. Tail of male is too small and truncated but in female it is well developed and longer than males.

***Pseudonymus hydrophilic* (Galeb 1878, Sties and Hassall 1905) Singh and Malti 2004**

Galeb (1878) described *Pseudonymus hydrophilic* for the first time as *Oxyuris hydrophilic*, which was later transferred to the genus *Pseudonemous* by Diesing (1857). This species was later described by Basir (1941), from India from several hosts like *Hydrophilus triangularis*, *Tropisternus nimbatus*, *Hydrophilus piceus* and also from some unidentified aquatic beetles. Basir (1941) described it as *Galebiella galebiella*. Which he himself synonymised with *Pseudonymus hydrophilic* in 1956. Subsequently, Rao (1958) also redescribed this species from the rectum of an unidentified beetle at Vijaynagar, Andhra Pradesh. The author also

collected a few specimens of this parasite from an aquatic beetle. The specimen at the disposal of the writer exhibit minor variations besides measurements of different parts of the body. It is, therefore, redescribed briefly. The redescription is based on fresh material collected by the author.

***Leidynema orientalis* Singh and Malti, 2004**

The worms are small. Males are with evenly tapering anterior end and a very short tail, the caudal appendage in female is elongated. Mouth is surrounded by very large submedian labial papillae bearing amphids or lateral organs in the form of circular protruberances. Body of the worm in both sexes is provided with well developed lateral alae. The cuticular covering of body bears transverse striations, which are coarse in anterior region in either sexes. The excretory pore is marked in post oesophageal part of body in either sex.

***Thubunaea impar* (Basir1941)**

*Supella* sp. Infected with some cyst and a few free larval forms of varying size. The size of infection being body cavity of insect. On the detail morphological examination, it was found to be the third larval stage of the genus *Thubunaea* Seurat, 1914.

***Leidynema appendiculata* Chaudhary, et al., 2011**

The worms are small. Males are with evenly tapering anterior end and a very short tail, the caudal appendage in female is elongated. Mouth is surrounded by very large submedian labial papillae bearing amphids or lateral organs in the form of circular protruberances. Body of the worm in both sexes is provided with well developed lateral alae. The cuticular covering of body bears transverse striations, which are coarse in anterior region in either sexes. The excretory pore is marked in post oesophageal part of body in either sex.

The survey of insect parasitic nematodes carried out in different localities of Meerut, U.P. revealed a large number of important and potentially zoophagous species of nematode associated with various insect hosts. The nematodes species collected during the survey belonging to the family Thelastomatidae and Oxyuridae have been reported under 12 Genera 14 species and 2 families. So far 14 species have been identified belonging to Thelastomatidae and Oxyuridae.

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