

JULY 2025
ONLINE VERSION 2.0

ZOOLOGICAL SURVEY OF INDIA

Ministry of Environment, Forest & Climate Change

NEMATODA: PART 3: ARTHROPOD PARASITIC NEMATODE

Anjum N. Rizvi*, V.V. Gantait, Ritika Datta and Olivia Das

Zoological Survey of India, New Alipore, Kolkata-700053, West Bengal, India

anrizvi@gmail.com; <https://orcid.org/0000-0002-2226-001X>

vvgzsi123@gmail.com; <https://orcid.org/0000-0002-9605-3208>

dattaritika1@gmail.com; <https://orcid.org/0000-0001-5407-6463>

oliviadas12@gmail.com; <https://orcid.org/0009-0004-3955-9140>

*Corresponding author: anrizvi@gmail.com

DOI : [https://doi.org/10.26515/Fauna/2/2025/Nematodes:Arthropod parasites](https://doi.org/10.26515/Fauna/2/2025/Nematodes:Arthropod%20parasites)

Key words: Parasitic nematodes, arthropod parasitic, checklist, India

Citation: Rizvi, A.N., Gantait, V.V., Datta, R. and Das, O. (2025). Checklist of Fauna of India: Nematoda: Part 3: Arthropod Parasitic Nematode. Version 2.0. Zoological Survey of India.

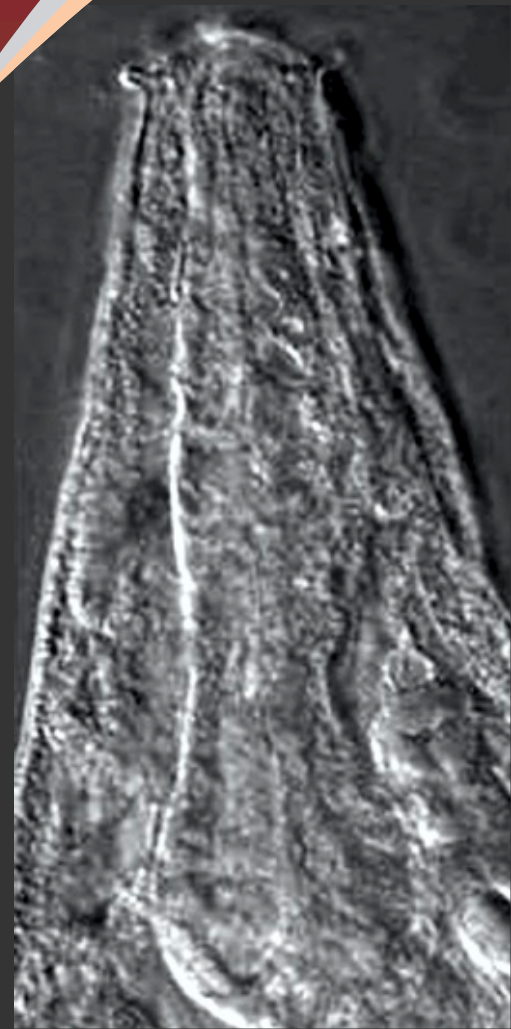
DOI: [https://doi.org/10.26515/Fauna/2/2025/Nematodes:Arthropod parasites](https://doi.org/10.26515/Fauna/2/2025/Nematodes:Arthropod%20parasites)

Comments on the checklist:

E-mail your comments and suggestions to improve the checklist to

zsifaunachecklists@gmail.com; anrizvi@gmail.com

FAUNA OF INDIA CHECKLIST



NEMATODA: PART 3: ARTHROPOD PARASITIC NEMATODE

Anjum N. Rizvi, V.V. Gantait, Ritika Datta and Olivia Das

Zoological Survey of India, New Alipore, Kolkata-700053, West Bengal, India

*Corresponding author: anrizvi@gmail.com; <https://orcid.org/0000-0002-2226-001X>

Viswa Venkat Gantait: vvgzsi123@gmail.com; <https://orcid.org/0000-0002-9605-3208>

Ritika Datta: dattaritika1@gmail.com; <https://orcid.org/0000-0001-5407-6463>

Olivia Das: oliviadas12@gmail.com; <https://orcid.org/0009-0004-3955-9140>

Introduction : Nematodes parasitic in arthropods occur naturally in soil environments and find their host due to carbon dioxide, vibration and other chemical cues (Kaya and Gaugler, 1993). The arthropod hosts include Diptera, Hymenoptera, Thysanoptera, Coleoptera, Dictyoptera, Orthoptera, Diplopoda and Chilopoda. The relationships between nematodes and its arthropod hosts vary from temporary to obligatory parasitism. Arthropod nematode associations can be grouped into three basic types: Phoretic relationship, facultative parasitism and obligate parasitism (Poinar, 1975). The work on arthropod parasitic nematodes in India was initiated by Iyenger (1927), he reported mermithids as an obligate

parasite from mosquitoes. Some of the important contributions include Ayyar (1940), Basir (1940 - 1956), Rao (1965-1980), Reddy and Rao (1984-1987), Parveen and Jairajpuri (1981-1985), Rizvi and Jairajpuri (1995-2000), Shah and coworkers (2003-2004), Gantait and Coworkers (2005- 2013) and few others.

Global diversity:

Diversity in India: In India, 95 species belonging to 35 genera, 14 families, 5 orders and two classes are recorded.

Diversity in States (Table)

Diversity in States: Presented in table 1.

Table 1:

Sl. No.	State / Union Territory	No. of Species
1	Andhra Pradesh	33
2	Arunachal Pradesh	0
3	Assam	3
4	Bihar	0
5	Chhattisgarh	0
6	Gujarat	2
7	Goa	0
8	Haryana	1
9	Himachal Pradesh	1
10	Jharkhand	0
11	Karnataka	5
12	Kerala	3
13	Madhya Pradesh	1
14	Maharashtra	5
15	Manipur	9
16	Meghalaya	3



Table 1

Sl. No.	State / Union Territory	No. of Species
17	Mizoram	0
18	Nagaland	0
19	Odisha	0
20	Punjab	3
21	Rajasthan	0
22	Sikkim	0
23	Tamil Nadu	5
24	Telangana	39
25	Tripura	0
26	Uttar Pradesh	39
27	Uttarakhand	8
28	West Bengal	2
29	Andaman & Nicobar	0
30	Chandigarh	0
31	Dadra Nagar Haveli, Daman & Diu	0
32	Delhi	5
33	Jammu & Kashmir	0
34	Ladakh	0
35	Lakshadweep	0
36	Puducherry	0

Endemism: No endemism reported in Nematodes

Habitat: Mainly parasitic in arthropod hosts like Diptera, Hymenoptera, Thysanoptera, Coleoptera, Dictyoptera, Orthoptera, Diplopoda and Chilopoda.

Ecological Significance: They are mainly utilized as biological control agents for controlling harmful insects

Human Significance: Nil

Threatened species as per IUCN: Species of Nematodes are not assessed for IUCN threat categories.

Protected Species as per WPA (2022): Nematodes are not listed under any schedules of Wildlife Protection Act (2022).

Species under CITES: are not listed under any appendices of CITES.

Invasive alien species: Not assessed

Gap areas: Except for a few states, Andhra Pradesh, Telangana and Uttar Pradesh, the number of arthropod parasitic nematodes reported is very less. Most of the states and UTs of India remains unexplored for this group.



Systematic list:

Phylum NEMATODA Cobb, 1932

Class ENOPLEA Inglis, 1983

Order MERMITHIDA Hyman, 1951

Family MERMITHIDAE Braun, 1883

Genus **Romanomermis** Coman, 1961

1. *R. manjeerensis* Reddy & Rajsekher, 1996

Class CHROMADOREA Inglis, 1983

Order RHABDITIDA Chitwood, 1933

Family HETERORHABDITIDAE Poinar, 1975

Genus **Heterorhabditis** Poinar, 1976

2. *H. bacteriophora* Poinar, 1976

3. *H. indica* Poinar *et al.*, 1977

Order SPIRURIDA Railliet, 1915

Family THELASTOMATIDAE Travassos, 1929

Genus **Blatticola** Schwenck, 1926

4. *B. blattae* (Graeffe, 1860) Chitwood, 1932

5. *B. supellaimae* Rao & Rao, 1965

Genus **Blattellicola** Schwenck, 1926

6. *B. blattellicola* Basir, 1940

7. *B. guptai* Duggal & Aulakh, 1988

Genus **Blattophila** Cobb, 1920

8. *B. indica* Rao & Rao, 1965

9. *B. spellaima* Basir, 1941

Genus **Cameronia** Basir, 1948

10. *C. aspiculata* (Farooqui, 1970) Adamson & Waerebeke, 1992

11. *C. basiri* Rizvi & Jairajpuri, 2002

12. *C. biovata* Basir, 1948

13. *C. conoides* Shanjay & Gambhir, 2021

14. *C. klossi* Parveen & Jairajpuri, 1948

15. *C. meerutensis* Singh, Rastogi & Singh, 2014

16. *C. multiovata* Leibersperger, 1960

17. *C. triovata* Shah, 2007

Genus **Cephalobellus** Cobb, 1920

18. *C. brevicaudatum* (Leidy, 1851) Christie, 1933

19. *C. singhi* Singhi & Singhi, 1989

Genus **Coronostoma** Rao, 1958

20. *C. singhi* Rao, 1958

Genus **Gryllophila** Basir, 1942

21. *G. basiri* Parveen & Jairajpuri, 1981

22. *G. nihali* Rizvi *et al.*, 2002

23. *G. skrjabini* (Sergiev, 1923) Basir, 1956

Genus **Hammerschmidtella** Chitwood, 1932

24. *H. basiri* Singh & Kaur, 1988

25. *H. diesingi* (Hammerschmidt, 1838) Chitwood, 1932

26. *H. singhi* Roa & Rao, 1965

Genus **Linstowiella** Basir, 1956

27. *L. basiri* Soota & Chaturvedi, 1971

Genus **Leidynema** Schwenck in Travassos, 1929

28. *L. appendiculatum* (Leidy, 1850) Chitwood, 1932

29. *L. periplaneti* Farooqui, 1967

30. *L. corydium* Rao, 1970



Genus **Protrellina** Chitwood, 1932

31. *P. phyllodromi* (Basir, 1942) Basir, 1956

Genus **Schwenkiella** Basir, 1956

32. *S. basiri* Parveen & Jairajpuri, 1980
33. *S. icemi* (Schwenk, 1926) Basir, 1956
34. *S. indica* Rao & Rao, 1966
35. *S. periplaneticola* Parveen & Jairajpuri, 1981

Genus **Thelastoma** Leidy, 1849

36. *T. guptai* Duggal & Aulakh, 1989
37. *T. kherai* Duggal & Aulakh, 1989
38. *T. indica* Rao, 1958

Family TRAVASSOSINEMATIDAE Rao, 1958

Genus **Binema** Travassos, 1925

39. *B. anulinervus* Shah & Rizvi, 2004
40. *B. chauhani* Singh & Singh, 1989
41. *B. korsakowi* (Sergiev, 1923) Basir, 1956
42. *B. mirzaia* (Basir, 1942) Basir, 1956
43. *B. ornata* Travassos, 1925
44. *B. parva* Parveen & Jairajpuri, 1985
45. *B. striatum* Rizvi & Jairajpuri, 2000

Genus **Chitwoodiella** Basir, 1948

46. *C. longicardia* Shah, 2008
47. *C. tridentata* Rizvi *et al.*, 1998
48. *C. ovofilamenta* Basir, 1948

Genus **Isobinema** Rao, 1958

49. *I. dimorphicauda* Parveen & Jairajpuri, 1982
50. *I. flagelloerca* Rao, 1958
51. *I. neoflagelloerca* Paddaja & Bharatha Lakshmi, 1994

Genus **Mirzaella** Basir, 1942

52. *M. alii* Farooqui, 1967
53. *M. asiatica* Basir, 1942
54. *M. haroldi* Farooqui, 1968

Genus **Pteronemella** Rao, 1958

55. *P. macropapillata* Rao, 1958

Genus **Psilocephala** Rao, 1958

56. *P. psilocephala* Rao, 1958

Genus **Singhiella** Rao, 1958

57. *S. singhi* Rao, 1958

Genus **Travassosinema** Rao, 1958

58. *T. travassosi* Rao, 1958

Family PROTRELLOIDIDAE Chitwood, 1932

Genus **Protrellus** Cobb, 1920

59. *P. shamimi* Shah *et al.*, 2005
60. *P. indicus* Rizvi *et al.*, 2002

Family PSEUDONYMIDAE Adamson & Van Waerebeke, 1992

Genus **Pseudonymus** Diesing, 1857

61. *P. basiri* Shah & Rizvi, 2004
62. *P. hydrophili* (Galeb, 1878) Stiles & Hassall, 1905
63. *P. islamabadi* (Basir, 1941) Basir, 1956

Genus **Zonothrix** Todd, 1942

64. *Z. alata* Shah & Rizvi, 2004

Order RHIGONEMATIDA van Waerebeke 1984



Family CARNOYIDAE Filipjev, 1934 (Travassos & Kloss, 1960)

Genus **Rondonema** Artigas, 1926

65. *R. spirostreptum* Rao & Kumari, 1967

Order PANAGROLAIMIDA Hodda, 2007

Family STEINERNEMATIDAE Chitwood & Chitwood, 1937

Genus **Steinernema** Travassos, 1927 (Filipjev, 1934)

66. *S. abbasi* Elawad *et al.*, 1997

67. *S. bicornutum* Tallosi *et al.*, 1995

68. *S. carpocapsae* (Weiser, 1995) Wouts *et al.*, 1982

69. *S. dharanaii* Kulkarni *et al.*, 2012

70. *S. feltiae* (Filipjev, 1934) Wouts *et al.*, 1982

71. *S. glaseri* (Steiner, 1929) Wouts *et al.*, 1982

72. *S. indicum* Patil *et al.*, 2023

73. *S. masoodi* Ali *et al.*, 2005

74. *S. meghalayensis* Ganguly *et al.*, 2011

75. *S. riobrave* Cabanillas *et al.*, 1994

76. *S. seemae* Ali *et al.*, 2005

77. *S. siamkayai* Stock *et al.*, 1998

78. *S. tami* Luc *et al.*, 2000

79. *S. thermophilum* Ganguly & Singh, 2000

Family APHELENCHOIDIDA (Skarbilovich, 1947) Paramonov, 1953

Genus **Schistonchus** Cobb, 1927

80. *S. racemosa* Reddy & Rao, 1986

Family ENTAPHELENCHIDAE Nickle, 1970

Genus **Praecocilenchus** Poinar, 1969

81. *P. ferruginophorus* Rao & Reddy, 1980

Family ALLANTONEMATIDAE (Pereira, 1931) Chitwood & Chitwood, 1937

Genus **Howardula** Cobb, 1921

82. *H. aptini* (Sharga, 1932) Wacheck, 1955

83. *H. belgaumensis* Raj & Reddy, 1989

84. *H. marginatis* Reddy & Rao, 1981

85. *H. mutilatus* Devi, Rao & Reddy, 1991

86. *H. phyllotreta* Oldham, 1933

Family NEOTYLENCHIDAE Thorne, 1949

Genus **Physitylenchus** Rao & Reddy, 1982

87. *P. aenea* Rao & Reddy, 1982

Family PARASITYLENCHIDAE Siddiqi, 1986

Genus **Parasitylenchus** Micoletzky, 1922

88. *P. coccinellae* Iperti & Waerebeke, 1968

Genus **Heterotylenchus** Bovien, 1937

89. *H. crassirostris* Reddy & Rao, 1981

90. *H. hydrabadensis* Reddy & Rao, 1980

91. *H. xanthomelas* Reddy & Rao, 1987

Family CEPHALOBIIDAE Travassos & Kloss, 1960

Genus **Cephalobium** Cobb, 1920

92. *C. (Adenticum) aodus* Rao, 1982

93. *C. (Adenticum) caudatum* Gantait & Chatterjee, 2007

94. *C. (Denticum) gryllodes* Rao, 1980

95. *C. (Denticum) microvata* Rao & Rao, 1965



References:

- Ayyar, K.P.N. 1940. *Geomermis indica* Steiner (Mermithidae), a new nematode parasite of *Pempherulus affinis*. *Faust. Ind. J. Entomol.*, **2**: 96-97.
- Basir, M.A. 1940. Nematodes parasitic in Indian cockroaches. *Proc. Indian Acad. Sci.*, **12**: 8-16.
- Basir, M.A. 1956. Oxyuroid parasites of Arthropoda. A monographic study 1. Thelastomatidae 2. Oxyuridae. *Zoologica* (Stuttgart), 79 pp., 13 plates.
- Gantait, V.V. and Chatterjee, A. 2005. A new nematode species of the genus *Johnstonia* Basir, 1956 from millipede (*Spirobolus* sp.) at Murarichak, West Bengal. *Indian Journal of Helminthology (New Series)*, **23**: 35-40.
- Gantait, V.V. and Venkataraman, K. 2013. Catalogue of Arthropod Parasitic of Nematodes of India. *Rec. Zool. Surv. India, Occ. Paper No.*, **345**: 1-83. (Published by the Director, Zool. Surv. India, Kolkata).
- Iyengar, M.O.T. 1927. Parasitic nematodes of Anopheles in Bengal. *Far. East. Assoc. of Trop. Med. Trans. Of the 7th Cong British India*, **3**: 128-135.
- Kaya, H.K. and Gaugler, R. 1993. Entomopathogenic Nematodes. *Annu. Rev. Entomol.*, **38**: 181-206.
- Parveen, K. and Jairajpuri, D.S. 1981. Two new species of insect nematodes of the family Thelastomatidae. *Rivista di Parassitologia*, **42**(2): 261-266.
- Parveen, K. and Jairajpuri, D.S. 1985. *Binema parva* n. sp., a parasitic nematode of the mole cricket, *Gryllotalpa africana*. *Rivista di Parassitologia*, **46**(3): 347-349.
- Poinar, G.O. Jr. 1975. Entomogenous Nematodes. A Manual and host list of Insect Nematode Association. *E. J. Brill, Leiden, The Netherlands*.
- Rao, P.N. 1965. A description of a new nematode of the Genus *Blatticola* Schwenk (1926). *Annals and Magazine of Natural History*, **8**: 273-275.
- Rao, V.J. 1980. Description of a new nematode belonging to the genus *Cephalobium* Cobb, 1920 (Cephalobidae: Nematoda). *Proceedings of the Indian Academy of Parasitology*, **1**(1): 66-68.
- Reddy, Y.N. and Rao, P.N. 1984. First report of *Parasitylenchus coccinellae* Ipert and Waerebeke (1968) from India in two new hosts *Menochilus sexmaculatus* (F) and *Illeis indica* Timb. *Rivista di Parassitologia*, **45**(1): 133-137.
- Reddy, Y.N. and Rao, P.N. 1987. Studies on *Heterotylenchus xanthomelas* sp. n. parasitic in *Musca xanthomelas* Wiedemann (Muscidae: Diptera). *Indian Journal of Nematology*, **17**(2): 180-183.
- Rizvi, A.N. and Jairajpuri, D.S. 1995. Scanning electron microscopy of *Thelastoma ather* in. comb. (Nematoda: Thelastomatidae), from the cockroach, *Periplaneta americana*. *J. Parasit. Appl. Anim. Biol.*, **4**(1): 9-13.
- Rizvi, A.N. and Jairajpuri, D.S. 2000. Studies on a new and two known species of Travassosinematidae (Oxyurida). *International Journal of Nematology*, **10**(1): 112-117.
- Shah, M.M. and Rizvi, A.N. 2004. Some studies on three known and a new species of the Genus *Binema* Travassos, 1925 (Travassosinematidae: Thelastomatoidea) from Manipur, North-East India. *Parassitologia*, **46**: 317-326.
- Shah, M.M., Jairajpuri, D.S. and Rizvi, A.N. 2003. Studies on seasonal variation on prevalence of insect nematodes in Manipur, N.E. *India Parasites and diseases*, 67-72.

