

# Check List of Insect Parasitic Nematodes of India

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## INTRODUCTION

Nematodes associated with insects are commonly referred to as entomogenous or entomopathogenic nematodes (ENP), although entomophilic might be a better descriptor or simply as insect parasitic nematodes (IPN). Entomopathogenic nematodes are lethal obligatory parasites of insects. After extensive research, including many successful field trials, interests have been grown in the use of IPNs as biological control agents. They are potential and most promising bio-agents for control of different insect pests of different crops; those are eco-friendly and cost effective (Ali *et al.*, 2005). Increasing environmental concerns about the use of chemical pesticides and the availability of fewer of them reawakened interest in IPNs for control of insect pests. They have added a new dimension to Integrated Pest Management (IPM) strategies. Research information of EPNs are, however, meager and scattered which need to be synthesized. This would form base for further research and their successful and promising use in IPM.

Insect parasitic nematodes have been known since the 17<sup>th</sup> century and perhaps the earlier (Nguyen and Smart, 2004). Extensive studies on IPNs were carried out in the 19<sup>th</sup> and 20<sup>th</sup> centuries. During the last one decade, remarkable progress has been made in the taxonomy of IPN. Studies on the economic importance and life histories of two mermithid parasites of grasshoppers, *Agamermis decaudata* Cobb *et al.*, 1923 and *Mermis subnigrescens* Cobb, 1926 were excellent contributions and stand as classic in insect nematology (Christie, 1936; Nguyen and Smart, 2004). Basir (1956) has done an excellent work on oxyuroid parasites of Arthropoda. Poinar (1977) gave a generic key of entomophilic nematodes. Remarkable studies on parasitic nematodes of insects were made by

Hammerschmidt (1835-1850), Leidy (1845-1860), Cobb (1910-1930), Travassos (1920-1960), Steiner (1920-1930), Artigas (1925-1930), Christie (1930-1940), Chitwood and Chitwood (1930-1950), Nickle (1960-1984), Poinar (1970-1995), Nguyen and Smart (1985-till date) and many others.

In India, work on nematode parasites of insects was started by Basir in 1940 and he has done a lot during 1940-1970, which was followed by Siddiqi (1960- till date), Farooqui (1967), Duggal and Aulakh (1988, 1989), Singh and Singh (1988, 1989), Parveen and Jairajpuri (1980-1990), Rijvi and Jairajpuri (1995- till date), Ganguly (2000-till date), Ali (2000-till date) and few others, mainly in North India. In South India, significant contribution and series of reports were made by Narayan Rao (1962-1995), followed by Meena Kumari (1965-1975), Jagannath Rao (1966-1985), Rukmini Devi (1990-1995), Narsi Reddy (1980-1997), Hussaini (1995-till date) and others. Very recently Gantait and Chatterjee (2007) reported 30 species of parasitic nematodes of Arthropoda from Andhra Pradesh, including two new subgenera and one new species.

The centers, working on entomophilic or entomopathogenic nematodes in India are Aligarh Muslim University, Aligarh, Meerut University, Meerut, Indian institute of Pulse Research, Kanpur and Allahabad University, Allahabad of Uttar Pradesh; Osmania University, Hyderabad and Andhra University, Visakhapatnam of Andhra Pradesh; Indian Agricultural Research Institute, New Delhi; Project Directorate of Biological Control, Bangalore of Karnataka; Northern Regional Station of Zoological Survey of India, Dehradun of Uttaranchal and Head Quarter of Zoological Survey of India, Kolkata of West Bengal and few others.

Lack of adequate taxonomic expertise and non-availability of literature on various described species have been major constraints to identify the species of nematode parasites of insects (Gangly, 2001). In this context, in the present work an attempt has been made to compile all the research information made on insect parasitic nematodes of India. Here, we represent a check list of all the parasitic nematode species of insects, described and reported so far from India. Total 72 species under 2 subgenera, 27 genera, 7 subfamilies, 10 families, 6 superfamilies one suborder and 3 orders have been recorded hereunder. Out of three orders,

Tylenchida includes 2 superfamilies, 3 families, 6 genera and 12 species. Order Oxyurida possesses 3 superfamilies, 4 families, 7 subfamilies, 18 genera and 44 species. Order Rhabditida includes one suborder, one superfamily, 3 families, 3 genera, 2 subgenera and 16 species. The taxonomic status up to generic level has been followed after Poinar (1977). The species under any genus have been arranged according to alphabet.

## CHECK LIST

**Phylum NEMATODA** Rudolphi, 1808 (Lankester, 1877)

**Class SECERNENTEA** von Linstow, 1905

**Order TYLENCHIDA** (Filipjev, 1934) Thorne, 1949

**Superfamily Aphelenchoidea** (Fuchus, 1937) Thorne, 1949

**Family Entaphelenchidae** Nickle, 1970

**Genus *Praecocilenchus*** Poinar Jr., 1969

**1. *Praecocilenchus ferruginophorus*** Rao and Reddy, 1980

1980. Rao, P. N. and Reddy, Y. N. *Rivista di Parassitologia*. **XLI** (1): 93-98.

*Distribution*: India: Kerala (Kayangulum).

**Genus *Schistonchus*** Cobb, 1927

**2. *Schistonchus racemosa*** Reddy and Rao, 1986

1986. Reddy, Y. N. and Rao, P. N. *Indian J. Nematol.*, **16** (1): 135-137.

*Distribution*: India: Andhra Pradesh (Hyderabad).

**Superfamily Neotylenchoidea** Thorne, 1949

**Family Neotylenchidae** (Thorne, 1941) Thorne, 1949

**Genus *Physitylenchus*** Rao and Reddy, 1982

**3. *Physitylenchus aenea*** Rao and Reddy, 1982

1982. Rao, P. N. and Y. N. Reddy, *Proc. Sym. Vectors and Vector-borne Diseases*, 119-123.

*Distribution*: India: Andhra Pradesh (Attapur, Hyderabad).

**Family Alantonematidae** (Pereira, 1931) Chitwood and Chitwood, 1937

**Genus *Howardula*** Cobb, 1921

Synonym: *Tylenchinema* Goodey, 1930

**4. *Howardula aptini*** (Sharga, 1932) Wacheck, 1955

Synonym: *Tylenchus aptini* Sharga, 1932

1932. Sharga, U. S. *Parasitology*, **24**: 268-279.

1955. Wacheck, F. *Parasit. Schr. Reihe*. **3**: 1-119.

*Distribution*: Europe, Canada, India: Andhra Pradesh (Hyderguda, Upperpalli, Vikarabad, Sangareddy, Bhongir and Tandur).

**5. *Howardula belgaumensis*** Raj and Reddy, 1989

1989. Raj K. D. and Reddy, Y. N. *Indian Journal of Nematology*, **19** (1): 82-84.

*Distribution*: India: Andhra Pradesh (Rangareddy).

**6. *Howardula marginatis*** Reddy and Rao, 1981

1981. Reddy, Y. N. and Rao, P. N. *Rivista di Parassitologia*, **XLI I** (1): 127-134.

*Distribution*: India: Andhra Pradesh (Hyderabad).

**7. *Howardula mutilatus*** Devi, Rao and Reddy, 1991

1991. Devi, T. R., Rao, P. N. and Reddy, Y. N. *Current Nematology*, **2** (1): 23-26.

*Distribution*: India: Andhra Pradesh (Hyderabad).

**8. *Howardula phyllotreta*** Oldham, 1933

1933. Oldham, J. N. *Journal of Helminthology*, **11**: 119-136.

*Distribution*: Europe, USA, India: Andhra Pradesh (Hyderabad, Boinpally and Attapur).

**Genus *Parasitylenchus*** Micoletzky, 1922

Synonyms: *Polymorphotylenchus* Rühm, 1956

*Vastotylenchus* Slankis, 1967

**9. *Parasitylenchus coccinellae*** Iperiti and Waerebeke, 1968

1968. Iperiti, G. and Waerebeke, D. V. *Entomophaga*, **13** (2): 107-119.

*Distribution*: France, India: Andhra Pradesh (Hyderabad).

**Genus *Heterotylenchus*** Bovien, 1937

**10. *Heterotylenchus crassirostris*** Reddy and Rao, 1981

1981. Reddy, Y. N. and Rao, P. N. *Indian Journal of Nematology*, **11** (1): 19-24.

*Distribution*: India: Andhra Pradesh (Upperpally, Ghatkesar, Vikarabad, Hyderabad).

**11. *Heterotylenchus hydrabadensis*** Reddy and Rao, 1980

1980. Reddy, Y. N. and Rao, P. N. *Proc. Indian Acad. Parasitol.*, **1** (2): 51-54.

*Distribution*: India: Andhra Pradesh (Adjoining Hyderabad).

**12. *Heterotylenchus xanthomelas*** Reddy and Rao, 1987

1987. Reddy, Y. N. and Rao, P. N. *Indian Journal of Nematology*, **17** (2): 180-183.

*Distribution*: India: Andhra Pradesh (Ghatkesar, Attapur, Vikarabad and Bhongir).

**Order OXYURIDA** Weinland, 1858

Synonym: **OXYURATA** Skrjabin, 1923

**Superfamily Hystrignathoidea** Travassos, 1920

**Family Chitwoodiellidae** Basir, 1948

**Genus *Mirzaiella*** Basir, 1942

**13. *Mirzaiella alii*** Farooqui, 1967

1967. Farooqui, M. N. *Zool. Anz.*, **176**: 276-296.

*Distribution*: India: Uttaranchal (Dehradun).

**14. *Mirzaiella asiatica*** Basir, 1942

1942. Basir, M. A. *Records of Indian Museum*, **44**: 95-106.

*Distribution*: India: Uttar Pradesh (Aligarh).

**15. *Mirzaiella haroldi*** Farooqui, 1968

1968. Farooqui, M. N. *Rivista di Parassitologia*, **XXIX**: 21-24.

*Distribution*: India: Uttaranchal (Dehradun).

**Genus** *Chitwoodiella* Basir, 1948

**16. *Chitwoodiella tridentata*** Rizvi *et al.*, 1998

1998. Rizvi, A. N., Jairajpuri, D. S. and Shah, M. M. *International J. Nematol.*, **8**: 13-16.

*Distribution*: India: Uttar Pradesh (Aligarh).

**17. *Chitwoodiella ovofilamenta*** Basir, 1948

1948. Basir, M. A. *Can. J. Res., D*, **26**: 4 -7.

*Distribution*: India: Uttar Pradesh (Aligarh), British West Indies.

**Superfamily** *Thelastomatoidea* Travassos, 1929

**Family** *Thelastomatidae* Travassos, 1929

**Subfamily** *Protrelloidea* Travassos, 1929

**Genus** *Protrellus* Cob, 1920

Synonyms: *Protrellina* Chitwood, 1932

*Aglaopterixia* Kloss, 1961

**18. *Protrellus phyllodromi*** (Basir, 1942) Basir, 1956

Synonym: *Protrellina phyllodromi* Basir, 1942

1942. Basir, M. A. *Records of Indian Museum*, **44**: 95-106.

*Distribution*: India: Uttar Pradesh (Aligarh), Panjab (Ropar).

**Genus** *Linstowiella* Basir, 1956

**19. *Linstowiella basiri*** Soota and Chaturvedi, 1971

1971. Soota, T. D. and Chaturvedi, Y. *Indian Journal of Helminthology*, **XXIII** (1): 48-53.

*Distribution*: India: Kerala.

**Subfamily** *Binematinae* Travassos, 1925

**Genus *Binema* Travassos, 1925**

**20. *Binema chauhani* Singh and Singh, 1989**

1989. Singh, H. S. and Singh, K. *Dr. B. S. Chauhan Comm. Vol.*, 149 -153.

*Distribution*: India: Uttar Pradesh (Meerut).

**21. *Binema korsakowi* (Sergiev, 1923) Basir, 1956**

Synonyms: *Oxyuris korsakowi* Sergiev, 1923

1923. Sergiev, P. G. *Trans. State Inst. Exp. Vet. Sci., Moscow*, **1**: 183-190.

1956. Basir, M. A. *Zoologica* (Stuttgart). 79 pp., 13 plates.

*Distribution*: U. S. S. R. (Crimea), Brazil (Rio de Janeiro), India: Uttar Pradesh (Aligarh), Spain.

**22. *Binema mirzaia* (Basir, 1942) Basir, 1956**

Synonyms: *Periplaneticola mirzaia* (Basir, 1940)

*Periplaneticola periplaneticola* (Basir, 1942)

1940. Basir, M. A. *Proc. Indian Acad. Sci.*, **12** (Sec. B): 8-16.

1942. Basir, M. A. *Records of Indian Museum*, **44**: 95-106.

1956. Basir, M. A. *Zoologica* (Stuttgart). 79 pp., 13 plates.

*Distribution*: India: Uttar Pradesh (Aligarh, Siddharth Nagar), Uttaranchal (Dehradun).

**23. *Binema ornata* Travassos, 1925**

Synonyms: *Talpicola talpicola* Basir, 1942

*Binema (Ornata) ornata* (Travassos, 1925) Serrano Sánchez, 1947

*Binema (Ornata) techae* Serrano Sánchez, 1947

*Binema (Ornata) carmeloi* Serrano Sánchez, 1947

1925. Travassos, L. *Comptes Rendus a la Societe de Biologie, Paris*, **93**: 140-141.

1942. Basir, M. A. *Records of Indian Museum*, **44**: 95-106.

1947. Serrano Sánchez, A. *Rev. Iberica Parasitologia*, **7**: 279-332.

*Distribution*: Brazil (Rio de Janeiro), India: Uttar Pradesh (Aligarh), Spain.

**24. *Binema parva*** Parveen and Jairajpuri, 1985

1985. Parveen, R. and Jairajpuri, D. S. *Rivista di Parassitologia*, **46** (3): 347-349.

*Distribution*: India: Uttar Pradesh (Aligarh).

**25. *Binema striatum*** Rizvi and Jairajpuri, 2000

2000. Rizvi, A. N. and Jairajpuri, D. S. *International Journal of Nematology*, **10** (1): 112-117.

*Distribution*: India: Uttar Pradesh (Aligarh).

**Subfamily Hammerschmidtellinae** Chitwood, 1932

**Genus *Hammerschmidtella*** Chitwood, 1932

**26. *Hammerschmidtella basiri*** Singh and Kaur, 1988

1988. Singh, H. S. and Kaur H. *Indian Journal of Parasitology*, **12** (1): 187-189.

*Distribution*: India: Uttar Pradesh (Meerut).

**27. *Hammerschmidtella diesingi*** (Hammerschmidt, 1838) Chitwood, 1932

Synonyms: *Oxyuris diesingi* Hammerschmidt, 1838

*Oxyuris blattae orientalis* Hammerschmidt, 1847

*Aorurus diesingi* (Hammerschmidt, 1838) Travassos, 1929

1838. Hammerschmidt, K. E. *Isis (Oken), Leipzig*, **5**: 351-358.

1932. Chitwood, B. G. Z. *Parasitenkunde*, **5**: 14 -50.

1847. Hammerschmidt, K. E. *Naturwiss. Abh. Wien*, **1**: 279-288.

1929. Travassos, L. *Mem. Inst. Oswaldo Cruz, Suppl.*, **5**: 19-25.

*Distribution*: Europe; North America; South America; India: Uttar Pradesh (Aligarh), West Bengal (Howrah), Andhra Pradesh (Anantapur), Uttaranchal (Dehradun); Russia.

**28. *Hammerschmidtella singhi*** Rao and Rao, 1965

1965. Rao, P. N. and Rao, V. J. *Rivista di Parassitologia*. **XXVI** (1): 9-12.

*Distribution*: India: Andhra Pradesh (Hyderabad).

**Subfamily Gyoeryiinae** Travassos, 1929

**Genus *Pseudonymus*** Diesing, 1857

Synonyms: *Ptycocephalus* Diesing, 1861

*Oxyuris (Helicothrix)* Galeb, 1878

*Galebiella* Basir, 1941.

*Zonothrix* Todd, 1942.

**29. *Pseudonymus hydrophilic*** (Galeb, 1878) Stiles and Hassall, 1905

Synonyms: *Oxyuris (Helicothrix) hydrophilic* Galeb, 1878

*Pseudonymous brachycercus* Todd, 1944

*Pseudonymous leptocercus* Todd, 1944

1878. Galeb, O. *Rev. Int. Sci.*, **2**: 432-434.

1905. Stiles, C. W. and Hassall, A. *U. S. Dept. Agric. Bur. Animal Industry, Bull.*, **79**, 150 pp.

1944. Todd, A. C. *Journal of Parasitology*, **30**: 269-272.

*Distribution*: Europe, India (Uttar Pradesh), United States of America (Nebraska, Louisiana).

**30. *Pseudonymus islamabadi*** (Basir, 1941) Basir, 1956

Synonym: *Galebiella islamabadi* Basir, 1941

1941. Basir, M. A. *Proc. Indian Acad. Sci.*, **13** (Sec B): 163-167.

1956. Basir, M. A. *Zoologica* (Stuttgart). 79 pp., 13 plates.

*Distribution*: India: Uttar Pradesh (Aligarh).

**Subfamily Cameroniinae** Basir, 1948

**Genus *Cameronia*** Basir, 1948

**31. *Cameronia biovata*** Basir, 1948

1948. Basir, M. A. *Candn. J. Res., D*, **26**: 201-203.

*Distribution*: India: Uttar Pradesh (Aligarh), Andhra Pradesh (Vishakhapatnam).

**32. *Cameronia klossi*** Parveen and Jairajpuri, 1984

1984. Parveen, R. and Jairajpuri, D. S. *Revista Iberica de Parasitologia*, **44**: 153-158.

*Distribution*: India: Uttar Pradesh (Aligarh).

**Subfamily Blatticolinae** Travassos, 1929

**Genus *Blatticola*** Schwenk, 1926

**33. *Blatticola blattae*** (Graeffe, 1860) Chitwood, 1932

Synonyms: *Oxyuris blattae* Graeffe, 1860

*Oxyuris blatticola* Galeb, 1878

*Blatticola blatticola* (Galeb, 1878) Schwenk, 1926

1860. Graeffe, E. N. *Denkschr. Allg. Schweiz. Ges. Naturwiss., Zurich*, **17**: 59 pp.

1932. Chitwood, B. G. *Z. Parasitenkunde*, **5**: 14 -50.

1878. Galeb, O. *Arch. Zool. Exper. et Gen.*, **7**: 283-390.

1926. Schwenk, J. M. *Sci. Medica, Rio de Janeiro*, **4**: 491-504.

*Distribution*: Europe; North America; South America; India: Uttar Pradesh (Aligarh), Himachal Pradesh (Solan), Haryana (Panchkula) and Andhra Pradesh (Araku Valley).; U.S.S.R.

**34. *Blatticola supellaimae*** Rao and Rao, 1965

1965. Rao, P. N. and Rao, V. J. *Annals and Magazine of Natural History*, **8** (Ser. 13): 273-275.

*Distribution*: India: Andhra Pradesh (Hyderabad).

**Genus *Blattellicola*** Basir, 1940

**35. *Blattellicola blattellicola*** Basir, 1940

1940. Basir, M. A. *Proc. Indian Acad. Sci.*, **12** (Sec. B): 8-16.

*Distribution:* Northern India.

**36. *Blattellicola guptai*** Duggal and Aulakh, 1988

1988. Duggal, C. L. and Aulakh, A. *Research Bulletin (Science) of the Panjab University*, **39** (Parts I-II): 21-25.

*Distribution:* India: Panjab (Ropar).

**Subfamily Thelastomatinae** Travassos, 1929

**Genus *Cephalobellus*** Cobb, 1920

**37. *Cephalobellus brevicaudatum*** (Leidy, 1851) Christie, 1933

Synonyms: *Thelastoma brevicaudatum* Leidy, 1851

*Thelastomum brevicaudatum* Leidy, 1853

*Scarabanema brevicaudatum* (Leidy, 1851) Christie, 1931

1851. Leidy, J. *Proc. Acad. Nat. Sci. Philadelphia*, **5**: 205-209.

1933. Christie, J. R. *J. Washington Acad. Sci.*, **23**: 358.

1853. Leidy, J. *Smithsonian Cont. Know., Washington*, **5**, Art. 2: 1- 67.

1931. Christie, J. R. *J. Agric. Res.*, **42**: 463- 482.

*Distribution:* Near Philadelphia, India (Uttar Pradesh), United States of America, England.

**38. *Cephalobellus singhi*** Singhi and Singhi, 1989

1989. Singh, H. S. and Singh, K. *Dr. B. S. Chauhan Comm. Vol.*, 149 -153.

*Distribution:* India: Uttar Pradesh (Meerut).

**Genus *Isobinema*** Rao, 1958

**39. *Isobinema dimorphicauda*** Parveen and Jairajpuri, 1982

1982. Parveen, R. and Jairajpuri, D. S. *Rivista di Parassitologia*. **XLIII** (1): 113-115.

*Distribution:* India: Uttar Pradesh (Aligarh).

**40. *Isobinema neoflagellocerca*** Bunga and Lakshmi, 1994

1994. Bunga. P. and Lakshmi, B. B. *Indian Journal of Parasitology*, **18** (2): 207-209.

*Distribution*: India: Andhra Pradesh (Narsipatnam).

**Genus *Leidynema*** Schwenk, 1929

**41. *Leidynema appendiculatum*** (Leidy, 1850) Chitwood, 1932

1850. Leidy, J. *Proc. Acad. Nat. Sci. Phila.* **5**: 100-102.

1932. Chitwood, B. G. *Z. Parasitenkunde*, **5**: 14 -50.

*Distribution*: India: Uttaranchal (Dehradun).

**42. *Leidynema periplaneti*** Farooqui, 1967

1967. Farooqui, M. N. *Zool. Anz.*, **176**: 276-296.

*Distribution*: India: Uttaranchal (Dehradun).

**Genus *Thelastoma*** Leidy, 1849

Synonym: *Aorurus* Leidy, 1849

**43. *Thelastoma atheri*** (Parveen and Jairajpuri, 1983) Rizvi and Jairajpuri, 1995

1983. Parveen, R. and Jairajpuri, D. S. *Indian J. Nematol.*, **13** (2): 209-241.

1995. Rizvi, A. N. and Jairajpuri, D. S. *J. Parasit. Appl. Anim. Biol.*, **4** (1): 9-13.

*Distribution*: India: Uttar Pradesh (Aligarh), Andhra Pradesh (Tirupati-Tirumala, Chittoor).

**44. *Thelastoma guptai*** Duggal, C. L. and Aulakh, A. 1989

1989. Duggal, C. L. and Aulakh, A. *Research Bulletin (Science) of the Panjab University*, **40**, Parts I-II: 95-98.

*Distribution*: India: Delhi, Andhra Pradesh (Medak).

**45. *Thelastoma kherai*** Duggal, C. L. and Aulakh, A. 1989

1989. Duggal, C. L. and Aulakh, A. *Research Bulletin (Science) of the Panjab University*, **40**, Parts I-II: 95-98.

*Distribution*: India: Delhi, Andhra Pradesh (Nandyal, Karnool).

**46. *Thelastoma pterygoton* Poinar Jr., 1973.**

1973. Poinar, G. O. Jr. *Proc. Helminth. Soc. Washington*, **40** (1): 37-42.

*Distribution*: Ivory Coast, West Africa, India: Andhra Pradesh (Cuddaph).

**Genus *Schwenkiella* Basir, 1956**

**47. *Schwenkiella basiri* Parveen and Jairajpuri, 1980**

1980. Parveen, R. and Jairajpuri, D. S. *Indian Journal of Parasitology*, **4** (1): 41- 43.

*Distribution*: India: Uttar Pradesh (Aligarh), Andhra Pradesh (Guntur).

**48. *Schwenkiella icemi* (Schwenk, 1926) Basir, 1956**

Synonyms: *Bulhõesia icemi* Schwenk, 1926

*Thelastoma aligarhica* Basir, 1940

*Thelastoma icemi* Schwenk, (1926) Travassos, 1929

1926. Schwenk, J. M. *Sci. Medica, Rio de Janeiro*, **4**: 491-504.

1940. Basir, M. *Proc. Indian Acad. Sci.*, **12** (Sec. B): 8-16.

1929. Travassos, L. *Mem. Inst. Oswaldo Cruz., Suppl.*, **5**: 19-25.

1956. Basir, M. A. *Zoologica* (Stuttgart). 79 pp., 13 plates.

*Distribution*: Brazil (São Paulo); India: Uttar Pradesh (Aligarh), West Bengal (Howrah, South 24 Parganas); United States of America.

**49. *Schwenkiella indica* Rao and Rao, 1966**

1966. Rao, P. N. and Rao, V. J. *Indian Journal of Helminthology*, **XVIII**: 92-96.

*Distribution*: India: Andhra Pradesh (Hyderabad).

**50. *Schwenkiella periplaneticola* Parveen and Jairajpuri, 1981**

1980. Parveen, R. and Jairajpuri, D. S. *Rivista di Parassitologia*. **XLII** (2): 261-266.

*Distribution*: India: Uttar Pradesh (Aligarh), Andhra Pradesh (Rajamundry, Easr Godavari).

**Genus *Gryllophila* Basir, 1942**

Synonyms: *Thelastomum* Leidy, 1850

*Neyraiella* Serrano Sánchez, 1947

**51. *Gryllophila basiri*** Parveen and Jairajpuri, 1981

1981. Parveen, R. and Jairajpuri, D. S. *Rivista di Parassitologia*. **XLII** (2): 261-266.

*Distribution*: India: Uttar Pradesh (Aligarh), Andhra Pradesh (Gudur, Nellore).

**52. *Gryllophila nihali*** Rizvi *et al.*, 2002

2002. Rizvi, A. N., Jairajpuri, D. S. and Shah, M. M. *International Journal of Nematology*, **12** (1): 29-34.

*Distribution*: India: Uttar Pradesh (Siddharth Nagar).

**53. *Gryllophila skrjabini*** (Sergiev, 1923) Basir, 1956

Synonyms: *Thelastomum skrjabini* Sergiev, 1923

*Gryllophila gryllophila* Basir, 1942

1923. Sergiev, P. G. *Trans. State Inst. Exp. Vet. Sci., Moscow*, **1**: 183-190.

1942. Basir, M. A. *Records of Indian Museum*, **44**: 95-106.

1956. Basir, M. A. *Zoologica* (Stuttgart). 79 pp., 13 plates.

*Distribution*: USSR; India: Uttar Pradesh (Aligarh), Andhra Pradesh (Kakinada); Spain.

**Family Protrelloididae** Travassos, 1929

**Genus *Protrellatus*** Farooqui, 1970

**54. *Protrellatus indicus*** Rizvi *et al.*, 2002

2002. Rizvi, A. N., Jairajpuri, D. S. and Shah, M. M. *International Journal of Nematology*, **12** (1): 29-34.

*Distribution*: India: Uttar Pradesh (Siddharth Nagar).

**Family Blattophilidae** Cobb, 1920

**Genus *Blattophila*** Cobb, 1920

**55. *Blattophila indica*** Rao and Rao, 1965

1965. Rao, P. N. and Rao, V. J. *Secretaria Da Agricultura-São Paulo, Brasil*, **18** (Part. 8): 61-63.

*Distribution:* India: Andhra Pradesh (Hyderabad).

**56. *Blattophila supellaima*** Basir, 1941

1941. Basir, M. A. *Current Science*, **10**: 443- 444.

*Distribution:* India: Uttar Pradesh (Aigarh).

**Order RHABDITIDA** (Oerley, 1880) Chitwood, 1933

**Suborder Rhabditina** (Oerley, 1880) Chitwood, 1933

**Superfamily Rhabditoidea** (Oerley, 1880) Travassos, 1920

**Family Diplogasteridae** Micoletzky, 1922

**Genus *Cephalobium*** Cobb, 1920

**Subgenus *Adenticum*** Gantait and Chatterjee, 2007

**57. *Cephalobium (Adenticum) aodus*** Rao, 1982

1982. Rao, V. J. *Indian J. Nematol.*, **12** (1): 185-188.

*Distribution:* India: Andhra Pradesh (Medak).

**58. *Cephalobium (Adenticum) caudatum*** Gantait and Chatterjee, 2007

2007. Gantait, V. V. and Chatterjee, A. *Fauna of Andhra Pradesh, State fauna Series, Zoological Survey of India*, **5** (Part- 4): 81-123.

*Distribution:* India: Andhra Pradesh (Dakili, Nellore district).

**Subgenus *Denticum*** Gantait and Chatterjee, 2007

**59. *Cephalobium (Denticum) gryllodes*** Rao, 1980

1980. Rao, V. J. *Proceedings of the Indian Academy of Parasitology*, **1** (1): 66-68.

*Distribution:* India: Andhra Pradesh (Nizamabad).

**60. *Cephalobium (Denticum) microvata*** Rao and Rao, 1965

1980. Rao, P. N. and Rao, V. J. *Annals and Magazine of Natural History*, **VIII**: 360-364.

*Distribution:* India: Andhra Pradesh (Hyderabad).

**Family Heterorhabditidae** Poinar, 1976

**Genus *Heterorhabditis*** Poinar, 1976

Synonym: *Chromonema* Khan, Brooks and Hirschmann, 1976

**61. *Heterorhabditis bacteriophora*** Poinar, 1976

1976. Poinar, G. O. Jr. *Nematologica*, **21**: 463- 470.

*Distribution*: South Australia (Brecon); India: Tamil Nadu (Coonoor), Assam, Meghalaya.

**62. *Heterorhabditis indica*** Poinar *et al.*, 1992

1992. Poinar, G. O. Jr., Karunakar, G. K. and David, H. *Fundamental and Applied Nematology*, **15**: 467- 472.

*Distribution*: India: Tamil Nadu (Coimbatore), Karnataka (Bangalore), Manipur, Meghalaya and Kerala.

**Family Steinernematidae** Chitwood and Chitwood, 1937

Synonym: *Neoaplectanidae* Sobolev, 1953

**Genus *Steinernema*** Travassos, 1927

**63. *Steinernema bicornutum*** Tallosi *et al.*, 1995

1995. Tallosi, B., Peters, A. and Ehlers, R. *Russian Journal of Nematology*, **3**: 71-80.

*Distribution*: Yugoslavia (Vojvodina); India: Karnataka, New Delhi (IARI farm).

**64. *Steinernema carpocapsae*** (Weiser, 1955) Wouts *et al.*, 1982

Synonym: *Neoaplectana carpocapsae* Weiser, 1955

1955. Weiser, J. *Vestnik Ceskoslovenske Spolecnosti Zoologicke*, **19**: 44 -52.

1982. Wouts, W. M., Mracek, Z., Gerdin, S. and Bedding, R. A. *Systematic Parasitology*, **4**: 147-154.

*Distribution*: India: Andhra Pradesh, Tamil Nadu, Gujarat (Dantiwada, Deesa and Palanpur of Banaskantha district).

**65. *Steinernema feltiae*** (Filipjev, 1934) Wouts *et al.*, 1982

1982. Wouts, W. M., Mracek, Z., Gerdin, S. and Bedding, R. A. *Systematic Parasitology*, **4**: 147-154.

*Distribution:* India: Karnataka (Bangalore), Andhra Pradesh (ICRISAT), Kerala (CPCRI, Kayangulam, Idukki).

**66. *Steinernema glaseri*** (Steiner, 1929) Wouts *et al.*, 1982

1929. Steiner, G. *Journal of the Washington Academy of Sciences*, **19**: 436-440.

1982. Wouts, W. M., Mracek, Z., Gerdin, S. and Bedding, R. A. *Systematic Parasitology*, **4**: 147-154.

*Distribution:* India: Karnataka (Bangalore).

**67. *Steinernema masoodi*** Ali *et al.*, 2005

2005. Ali, S. S., Shaheen, A., Pervez, R. and Hussain, M. A. *International Journal of Nematology*, **15** (1): 89-99.

*Distribution:* India: Uttar Pradesh (Kanpur, Aligarh).

**68. *Steinernema riobrave*** Cabanillas *et al.*, 1994.

1994. Cabanillas, H. E., Poinar, G. O. Jr. and Raulston, J. R. *Fundamental and Applied Nematology*, **17**: 123-131.

*Distribution:* Texas; India: Uttar Pradesh (Kanpur), Gujarat (Anand).

**69. *Steinernema seemae*** Ali *et al.*, 2005

2005. Ali, S. S., Shaheen, A., Pervez, R. and Hussain, M. A. *International Journal of Nematology*, **15**: 89-99.

*Distribution:* India: Uttar Pradesh (Hamirpur).

**70. *Steinernema siamkayai*** Stock *et al.*, 1998

1998. Stock, S. P., Somsook, V. and Reid, A. *Systematic Parasitology*, **41**: 105-113.

*Distribution:* Thailand; India: Uttaranchal (Champawat), Tamil Nadu.

**71. *Steinernema tami*** Luc *et al.*, 2000

2000. Luc, P. V., Nguyen, K. B., Reid, A. P. and Spiridonov, S. E. *Russian Journal of Nematology*, **8**: 33- 43.

*Distribution:* Vietnam (Cat Tien Forest); India: Assam (Jorhat).

**72. *Steinernema thermophilum* Ganguly and Singh, 2000**

2000. Ganguly, S. and Singh, L. K. *International Journal of Nematology*, **10**: 183-191.

*Distribution*: India: New Delhi (IARI farm).

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