

Short note

Nematode types in the collection of the Phytonematology Laboratory at the Institute of Parasitology of the Russian Academy of Sciences

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Studies of plant parasitic nematodes began at the Helminthological Laboratory of the USSR Academy of Sciences (now the Institute of Parasitology of the Russian Academy of Sciences) in the early 1950s, under the guidance of Prof. A.A. Paramonov. Initially, nematode taxonomy was the principal priority of the Laboratory staff and research was characterized by the collection of large numbers of samples from the extensive territories of the USSR. At this time it was common practice to prepare temporary slides, with up to 20 specimens mounted on the same slide. Also, to facilitate processing of the large numbers of specimens a simplified dehydration technique was used in which nematodes were heat-killed and transferred to a glycerol/water solution, containing polychromous Methylene Blue, which was allowed to evaporate at room temperature. This simple method for preparing nematodes for mounting on slides was developed from the slow dehydration technique of Goodey (1957) and the polychromous staining procedure of Paramonov (1963). This type of processing procedure was commonly used by the "first generation" of Russian nematologists who were students of, or influenced by, the late Prof. A.A. Paramonov: Drs. I.A. Baranovskaya, S.L. Blinova, S.G. Myuge, T.V. Pokrovskaya, I.M. Sudakova and E.S. Turlygina. Subsequently, it was discovered that nematodes processed by these procedures rapidly deteriorated. In 1977, the present phytonemate collection was established and the permanent slides of V.G. Gagarin and N.I. Sumenkova represent the foundation of the collection. Unfortunately, only a small number of specimens on slides prepared prior to this time were found suitable for reprocessing by the method of Seinhorst (1959) and remounting in anhydrous glycerin. Since 1977, new permanent mounts of nematodes embedded in glycerin have

been added to the collection, with specimens being obtained from researchers and postgraduates of the Institute of Parasitology of the Russian Academy of Sciences: Pham Thanh Binh, L.V. Pavlyuk, O.A. Kulinich, L.B. Shubina, Nguyen Vu Thanh, A.Yu. Turkina. Also, further specimens and slides have been obtained from staff at other institutions, e.g. V.N. Chizhov and N.N. Zakharenkova.

Currently, the nematode slide collection contains almost 10,000 nematodes, of which about 6,000 are adult specimens. To date 500 species belonging to 165 genera have been identified, but the majority of the specimens in the collection have yet to be examined. In the collection there are holotype specimens of 37 species, allotypes for 6 species, paratypes of 48 species and topotypes for 14 species. There are also paratype specimens of a further 15 species for which descriptions have only recently been submitted for publication in international journals. The type specimens in the collection are here listed alphabetically with the following abbreviations used:

Holo = holotype;
Allo = allotype;
Para = paratype;
Topo = topotype;
f = female;
m = male;
j = juvenile;
s = section (head mount, perineal pattern, cone top);
Accn = accession number (type slide number).

Catalogue of types

aceri, *Rotylenchus*. Berezina N.V. 1985. *Byulleten Vsesoyuznogo Instituta Gel'mintologii im. K.I. Skrjabina* 41: 89-91. Para - 8f. Accn. 3 (72/4-5).

- aceri*, *Xiphinema*. Chizhov, V.N., Tiev, R.A. & Turkina, A.J. 1986. *Zoologicheskyy Zhurnal* 65 (6): 932-935. Para - 8f, 2j. Accn. 2 (70/11, 12).
- affinis*, *Tobriulus*. Gagarin, V.G. 1996. *Zoologicheskyy Zhurnal* 75 (3): 323-334. Holo - m; Para - 1m, 4f. Accn. 1 (71/43).
- alni*, *Meloidodera*. Turkina, A.J. & Chizhov, V.N. 1986. *Zoologicheskyy Zhurnal* 65 (4): 620-624. Para - 5f, 9j, 3s. Accn. 4 (70/16-19).
- alni*, *Sphaeronema*. Turkina, A.J. & Chizhov, V.N. 1986. *Zoologicheskyy Zhurnal* 65 (4): 620-624. Para - 4f. Accn. 1 (70/20).
- angarensis*, *Mononchus*. Gagarin, V.G. 1984. *Zoologicheskyy Zhurnal* 63 (4): 607-609. Allo - f; Para - 1m. Accn. 1 (71/31).
- anthrisculus*, *Paramalenchus*. Sumenkova, N.I. 1988. *Zoologicheskyy Zhurnal* 67 (7): 1073-1076. Holo - f; Para - 5f. Accn. 5 (24/36, 37, 40, 46, 48).
- artemisiae*, *Xiphinema*. Chizhov, V.N., Tiev, R.A. & Turkina, A.J. 1986. *Zoologicheskyy Zhurnal* 65 (6): 932-935. Para - 11f, 10m, 8j. Accn. 6 (70/33-38).
- bembidi*, *Wachekitylenchus*. Zacharenkova, N.N. & Chizhov, V.N. 1991. *Zoologicheskyy Zhurnal* 70 (9): 22-32. Holo - f (parthenogenetic); Para - 16f (parthenogenetic). Accn. 8 (70/69-76).
- bilineatus*, *Coslenchus*. Sumenkova, N.I. 1989. *Trudy GELAN*, 37: 141-149. Holo - f; Para - 5f. Accn. 4 (24/61-64).
- biserovi*, *Crocodyrylaimus*. Gagarin, V.G. 1996. *Zoologicheskyy Zhurnal* 75 (3): 323-334. Holo - m; Para - 3f. Accn. 1 (71/41).
- brevispiculus*, *Adoncholaimus*. Gagarin, V.G. 1993. In: *Presnovodnye bespozvonochnye: biologiya, sistematika, evolyutsiya. Trudy Instituta Biologii Vnutrennikh Vod im. I.D. Papanina*. 68 (71): 53-77. Holo - m; Para - 4f. Accn. 1 (71/28).
- brevistyletus*, *Quinisulcius*. Kulinich, O.A. 1985. *Zoologicheskyy Zhurnal* 64 (10): 1579-1584. Holo - f; Allo - m; Para - 3f, 2m. Accn. 1 (70/10).
- canis*, *Aporcelaimellus*. Gagarin, V.G. 1984. *Zoologicheskyy Zhurnal* 63 (4): 607-609. Holo - m; Para - 1f, 1m. Accn. 2 (71/21, 22).
- certus*, *Helicotylenchus*. Eroshenko, A.S. & Nguen Vu Thanh. 1981. In: *Svobodnozhivushchie i fitopatogennyye nematody fauny Dal'negu Vostoka*. (A.S. Eroshenko & O.I. Belogurov. Eds). Vladivostok. Dal'nev. Nauch. Tsentr Akad. Nauk SSSR. p. 28-34. Topo - 40f (from Nguen Vu Thanh's collection). Accn. 23 (28/53; 30/37, 52, 55, 56; 31/7-12, 69; 32/23, 85; 33/3, 5, 12, 14, 20; 34/52, 57; 35/32, 74).
- coffae*, *Helicotylenchus*. Eroshenko, A.S. & Nguen Vu Thanh. 1981. *Zoologicheskyy Zhurnal* 60 (12): 1882-1886. Topo - 1f (from Nguen Vu Thanh's collection). Accn. 1 (35/45).
- crenicaudatus*, *Miconchus*. Gagarin, V.G. 1984. *Zoologicheskyy Zhurnal* 63 (4): 607-609. Holo - m. Accn. 1 (71/33).
- cynariensis*, *Meloidogyne*. Pham Thanh Binh. 1990. *Zoologicheskyy Zhurnal* 69 (4): 128-131. Topo - 3s (from Nguen Vu Thanh's collection). Accn. 3 (37/9, 22, 39).
- dignus*, *Helicotylenchus*. Eroshenko, A.S. & Nguen Vu Thanh. 1981. *Zoologicheskyy Zhurnal* 60 (12): 1882-1886. Topo - 8f (from Nguen Vu Thanh's collection). Accn. 6 (28/33, 70; 31/63; 34/67; 35/35, 52).
- ferus*, *Helicotylenchus*. Eroshenko, A.S. & Nguen Vu Thanh. 1981. *Zoologicheskyy Zhurnal* 60 (12): 1882-1886. Topo - 1f (from Nguen Vu Thanh's collection). Accn. 1 (31/7).
- gigas*, *Mylonchulus*. Gagarin, V.G. 1993. In: *Svobodnozhivushchie Nematody Presnykh Vod Rossii i Sopredel'nykh Stran*. St. Petersburg, Gidrometeoizdat. 351 pp. (p. 342). Holo - m; Para - 1f. Accn. 2 (71/34, 35).
- glosaria*, *Paratrypyla*. Gagarin, V.G. 1994. *Biologiya Vnutrennikh Vod: Informatsionnyi Byulleten'* 96: 22-24. Holo - f; Para - 7f. Accn. 1 (71/38).
- graminis*, *Pararotylenchus*. Volkova, T.V. & Eroshenko, A.S. 1995. *Russian Journal of Nematology* 3 (1): 27-29. Para - 3f, 3m. Accn. 1 (71/40).
- helicus*, *Criconemoides*. Eroshenko, A.S. & Nguen Vu Thanh. 1981. In: *Svobodnozhivushchie i fitopatogennyye nematody fauny Dal'negu Vostoka*. (A.S. Eroshenko & O.I. Belogurov. Eds). Vladivostok. Dal'nev. Nauch. Tsentr Akad. Nauk SSSR. p. 28-34. Topo - 24f (from Nguen Vu Thanh's collection). Accn. 6 (27/58, 62; 28/32, 54; 31/62; 33/53).
- imitatoris*, *Eudorylaimus*. Gagarin, V.G. 1982. *Zoologicheskyy Zhurnal* 61 (10): 1592-1594. Holo - m. Accn. 1 (71/20).
- intermedius*, *Mononchoides*. Gagarin, V.G. 1993. In: *Presnovodnye bespozvonochnye: biologiya, sistematika, evolyutsiya. Trudy Instituta Biologii Vnutrennikh Vod im. I.D. Papanina* 68 (71): 53-77. Holo - f; Para - 1f, 1m. Accn. 1 (71/32).
- khashanicus*, *Geocenamus*. Volkova, T.V. 1995. *Russian Journal of Nematology*, 3 (1): 31-33. Para - 1f, 4m. Accn. 1 (71/39).
- khrustalevi*, *Thripinema*. Chizhov, V.N., Subbotin, S.A. & Zakharenkova, N.N. 1995. *Russian Journal of Nematology* 3 (2): 89-94. Holo - f; Para - 9f, 3m. Accn. 6 (70/77-82).
- laevicaudatus*, *Helicotylenchus*. Eroshenko, A.S. & Nguen Vu Thanh. 1981. In: *Svobodnozhivushchie i fitopatogennyye nematody fauny Dal'negu Vostoka*. (A.S. Eroshenko & O.I. Belogurov. Eds). Vladivostok. Dal'nev. Nauch. Tsentr Akad. Nauk SSSR. p. 28-34. Topo - 67f. Accn. 28 (27/80; 29/31, 59; 30/49, 50, 52, 55, 64; 31/2, 3, 7, 8,

- 13; 33/73; 34/2, 3, 44, 52, 56-59; 35/32, 52, 54, 59, 72, 74).
- laumondi*, *Skarbilovinema*. Chizhov, V.N. & Zaharenkova, N.N. 1991. *Zoologicheskyy Zhurnal* 70 (8): 28-36. Holo - f; Para - 25f. Accn. 16 (70/44-59).
- lignosus*, *Longidorus*. Chizhov, V.N., Subbotin, S.N., Romanenko, N.D. & Kruchina, S.N. 1991. *Zoologicheskyy Zhurnal* 70 (6): 130-133. Para - 15f, 16m, 14j. Accn. 7 (71/48-54).
- longicaudatus*, *Panagrolaimus*. Sumenkova, N.I. 1965. *Trudy GELAN* 16: 143-146. Holo - f; Allo - m; Para - 1f, 1m. Accn. 3 (4/4-6).
- lyoni*, *Skarbilovinema*. Zakharenkova, N.N. & Chizhov, V.N. 1991. *Zoologicheskyy Zhurnal* 70 (9): 22-32. Holo - f; Para - 21f. Accn. 9 (70/60-68).
- magnifica*, *Macroposthonia*. Eroshenko, A.S. & Nguen Vu Thanh. 1981. In: *Svobodnozhivushchie i fitopatogennyye nematody fauny Dal'nego Vostoka*. (A.S. Eroshenko & O.I. Belogurov. Eds). Vladivostok. Dal'nev. Nauch. Tsentr Akad. Nauk SSSR. p. 28-34. Topo - 149f. Accn. 110 (27/1 - 35/42).
- maxima*, *Eumonhystera*. Gagarin, V.G. 1996. *Zoologicheskyy Zhurnal* 75 (3): 323-334. Holo - f; Para - 4f. Accn. 1 (71/44).
- micans*, *Mesodorylaimus*. Gagarin, V.G. 1993. In: *Presnovodnye bespozvonochnyye: biologiya, sistematika, evolyutsiya. Trudy Instituta Biologii Vnutrennikh Vod im. I.D. Papanina* 68 (71): 53-77. Holo - f; Para - 3m. Accn. 1 (71/24).
- mirabile*, *Chromadorita*. Gagarin, V.G. 1993. In: *Presnovodnye bespozvonochnyye: biologiya, sistematika, evolyutsiya. Trudy Instituta Biologii Vnutrennikh Vod im. I.D. Papanina* 68 (71): 53-77. Holo - m; Para - 3f, 4m. Accn. 1 (71/29).
- modestus*, *Tobrilus*. Gagarin, V.G. 1996. *Zoologicheskyy Zhurnal* 75 (3): 323-334. Holo - m; Para - 1m, 2f. Accn. 1 (71/42).
- neominimus*, *Tylenchus*. Savkina, E.V. 1989. *Trudy GELAN* 37: 135-137. Holo - f; Allo - m; Para - 5f, 1m. Accn. 6 (70/21-26).
- oligoridjus*, *Coslenchus*. Sumenkova, N.I. 1989. *Trudy GELAN* 37: 141-149. Holo - f; Para - 2f. Accn. 3 (24/19, 29, 58).
- paramonovi*, *Nothotylenchus*. Gagarin, V.G. 1974. *Trudy GELAN* 24: 30-35. Topo - 4f; 2m. Accn. 1 (22/1).
- paramonovi*, *Xiphinema*. Romanenko, N.D. 1981. In: *Tezisy dokladov i soobshchenii pervoi konferentsii (IX-go Soveshchanija) po nematodam rastenii, nasekomykh i vod*, p. 68-69. Para - 3f. Accn. 1 (71/2).
- parasexlineatus*, *Aphelenchoides*. Kulinich, O.A. 1984. *Zoologicheskyy Zhurnal* 63 (10): 1570-1572. Holo - f; Allo - m; Para - 7f. Accn. 8 (6/25-32).
- pini*, *Tylenchorhynchus*. Kulinich, O.A. 1985. *Zoologicheskyy Zhurnal* 64 (10): 1579-1584. Holo - f; Para - 4f, 3m. Accn. 5 (70/5-9).
- pratensis*, *Ottolenchus*. Sumenkova, N.I. 1987. *Zoologicheskyy Zhurnal* 66 (12): 1805-1811. Holo - f; Para - 7f. Accn. 5 (24/38-40, 45, 47).
- quintastriatus*, *Chiloplacus*. Sumenkova, N.I. 1968. *Zoologicheskyy Zhurnal* 47 (12): 1777-1784. Holo - f; Para - 4f. Accn. 5 (3/26-29, 61).
- ranunculaceus*, *Ottolenchus*. Sumenkova, N.I. 1987. *Zoologicheskyy Zhurnal* 66 (12): 1805-1811. Holo - f; Para - 22f, 1m. Accn. 12 (24/10, 19, 25, 28, 30-34, 41, 50, 53).
- ripariensis*, *Criconemella*. Eroshenko A.S. & Volkova T.V. 1997. *Russian Journal of Nematology* 5 (1): 27-30. Para - 2f. Accn. 2 (71/3-4).
- riparium*, *Xiphinema*. Chizhov, V.N., Subbotin, S.A., Romanenko, N.D. & Kruchina, S.N. 1991. *Zoologicheskyy Zhurnal* 70 (6): 130-133. Para - 7f, 5m, 2j. Accn. 71/47.
- robustus*, *Megadesmolaimus*. Gagarin, V.G. 1993. In: *Presnovodnye bespozvonochnyye: biologiya, sistematika, evolyutsiya. Trudy Instituta Biologii Vnutrennikh Vod im. I.D. Papanina* 68 (71): 53-77. Holo - f; Para - 1f, 1m. Accn. 1 (71/27).
- rubi*, *Longidorus*. Tomilin, A.A. & Romanenko, N.D. 1993 (in Romanenko, 1993). In: *Fitogel'minty - Vironositeli Semeistva Longidoridae*. Moscow, Nauka, 284 pp. (p. 93). Para - 3f. Accn. 1 (71/1).
- ryzhikovi*, *Helicotylenchus*. Kulinich, O.A. 1985. *Zoologicheskyy Zhurnal* 64 (10): 1579-1584. Holo - f; Para - 6f. Accn. 4 (70/1-4).
- sachalinus*, *Calodorylaimus*. Gagarin, V.G. 1993. In: *Presnovodnye bespozvonochnyye: biologiya, sistematika, evolyutsiya. Trudy Instituta Biologii Vnutrennikh Vod im. I.D. Papanina* 68 (71): 53-77. Holo - m. Accn. 1 (71/25).
- sclerovaginat*, *Chiloplacus*. Sumenkova, N.I. & Razjivin, A.A. 1968. *Zoologicheskyy Zhurnal* 47 (12): 1777-1784. Holo - f; Allo - m; Para - 18f, 17 m, 13 j. Accn. 19 (3/13-25, 55-60).
- serena*, *Eumonhystera*. Gagarin, V.G. 1993. In: *Presnovodnye bespozvonochnyye: biologiya, sistematika, evolyutsiya. Trudy Instituta Biologii Vnutrennikh Vod im. I.D. Papanina* 68 (71): 53-77. Holo - f; Para - 1f. Accn. 1 (71/26).
- shoshini*, *Fictor*. Gagarin, V.G. 1995. *Zoologicheskyy Zhurnal* 74 (3): 12-23. Holo - f; Para - 3f, 1m. Accn. 1 (70/32).
- sibiricus*, *Ditylenchus*. German, E.V. 1969. *Vestnik Sel'skokhozhyaistvennoi Nauki*. Alma-Ata 1: 83-85. Topo - 1f, 1m (from author's collection). Accn. 2 (7/18, 19).
- sicus*, *Aporcelaimus*. Gagarin, V.G. 1992. In: *Svobodnozhivushchie Nematody Presnykh Vod SSSR*. St.

- Petersburg, Gidrometeoizdat. 152 pp. (p. 74). Holo - m. Accn. 1 (71/23).
- sigillaria*, *Criconemella*. Eroshenko A.S. & Volkova T.V. 1997. *Russian Journal of Nematology* 5 (1): 27-30. Para - 2f. Accn. 2 (71/5-6).
- subdubia*, *Achromadora*. Gagarin, V.G. 1971. *Zoologicheskyy Zhurnal* 50 (4): 474-482. Topo - 15f, 4j (from author's collection). Accn. 5 (21/1, 3-5, 7).
- taimiris*, *Prodomorganus*. Gagarin, V.G. 1993. In: *Svobodnozhivushchie Nematody Presnykh Vod Rossii i Sopredel'nykh Stran*. St. Petersburg, Gidrometeoizdat. 351 pp. (p. 117). Holo - f; Para - 1f. Accn. 1 (71/30).
- tenuicaudatus*, *Tobrilus*. Gagarin, V.G. 1989. *Zoologicheskyy Zhurnal* 68 (8): 18-25. Para - 3f. Accn. 1 (71/37).
- theae*, *Ecphyadophoroides*. Eroshenko, A.S. & Nguen Vu Thanh. 1981. *Zoologicheskyy Zhurnal* 60 (12): 1882-1886. Topo - 2f (from Nguen Vu Thanh's collection). Accn. 2 (27/76; 34/69).
- unisexus*, *Tobrilus*. Gagarin, V.G. 1989. *Zoologicheskyy Zhurnal* 68 (8): 18-25. Holo - f; Para - 2f. Accn. 1 (71/36).

- utschini*, *Nothotylenchus*. Gagarin, V.G. 1974. *Trudy GELAN* 24: 30-35. Topo - 4f, 2m, 1j (from author's collection). Accn. 1 (22/2).
- vietnamiensis*, *Scutellonema*. Eroshenko, A.S. & Nguen Vu Thanh. 1981. In: *Svobodnozhivushchie i Fitopatogennyye Nematody Fauny Dal'nego Vostoka*. (A.S. Eroshenko & O.I. Belogurov. Eds). Vladivostok. Dal'nev. Nauch. Tsentr Akad. Nauk SSSR. p. 28-34. Topo - 2f (from Nguen Vu Thanh's collection). Accn. 1 (30/25).

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