Review of the genus *Prodesmodora* Micoletzky, 1923 (Nematoda: Desmodorida: Desmodoridae)

Обзор рода *Prodesmodora* Micoletzky, 1923 (Nematoda: Desmodorida: Desmodoridae)

S.Ya. Tsalolikhin

С.Я. Цалолихин

S.Ya. Tsalolikhin, Zoological Institute, Russian Academy of Sciences, 1 Universitetskaya Emb., St Petersburg, 199034, Russia, E-mail: nematoda@zin.ru

Practically all nine species of the genus *Prodesmodora* are known only from type localities except for species *P. circulata*, cosmopolitism of which is doubtful. Morphometric characteristics of all the species are similar. Differentiation of the species is best performed by rectum length, tail length, cephalic setae length and by amphid position. A key for identification of species is given.

Из девяти валидных видов рода *Prodesmodora* практически все известны только из типовых местонахождений, за исключением вида *P. circulata,* космополитизм которого сомнителен. Морфометрические характеристики всех видов сходны. Дифференцировка видов наилучшим образом осуществляется по длине ректума, длине хвоста, длине головных щетинок и по положению амфида. Приводится ключ для определения видов.

Key words: free-living nematodes, taxonomy, key for species identification

Ключевые слова: свободноживущие нематоды, таксономия, Nematoda, Desmodoridae, *Prodesmodora*, ключ для определения видов

INTRODUCTUON

Position of the genus *Prodesmodora* in the system of Chromadoria group is debatable. In the opinion of some nematologists (Decraemer & Smol, 2006) this genus belongs to the order Desmodorida, family Desmodoridae and monotypical subfamily Prodesmodorinae. However, according to a different point of view (Andrássy, 2005), the genus *Prodesmodora* belongs to the order Chromadorida and family Microlaimidae. Brief diagnosis of the genus is as follows: Cuticle well annulated, not punctated. Stoma more or less tubular, armed with some very small teeth; cephalic setae four, short and fine. Amphidial fovea circular. Oesophagus with bulb. Female gonads two, ovaries reflexed. Male known in one species only: L=850–890 μm, a=24–24.8, b=6.5–6.6, c=9.1–9.3, c´=4, spic. 28–30 μm, suppl. 1–2. (Gagarin, 1978). The genus is mainly terrestrial, with some species from freshwater habitats. Type species *P. circulata* (Micoletzky, 1913).

In the faunal lists species *P. circulata* occurs most commonly, practically all other species are known only from type localities, cosmopolitism of *P. circulata* is however doubtful; other species could have been identified as *P. circulata* because of the similarity of morphometric characteristics of the majority of representatives of the genus.

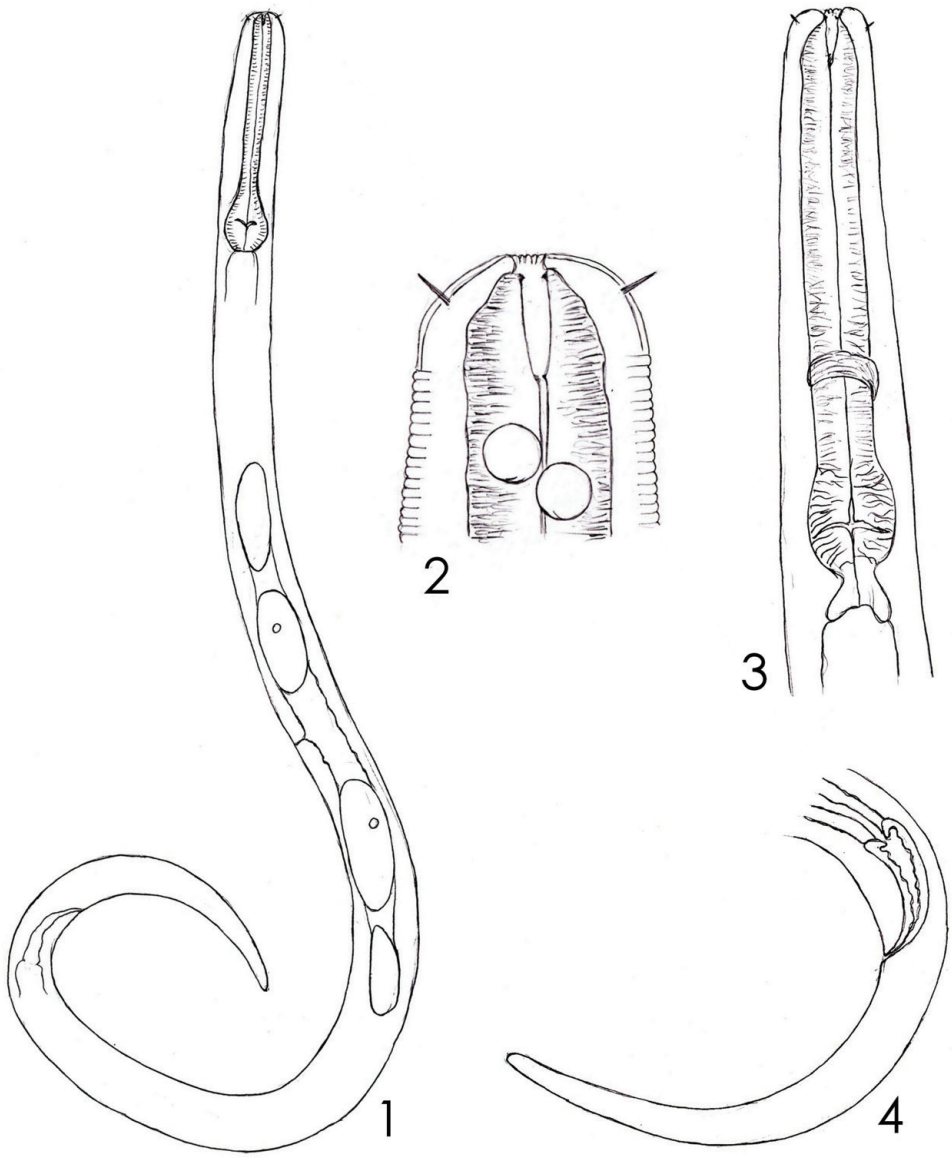
No new species can be assigned to the genus based upon the individual specimens from the meiobenthos samples from different water-bodies of the Earth, even when the specimen available to the researcher is significantly different from other species of the genus, as for instance in our case

the only adult female from a spring on the bank of the Nubra River at an altitude of 3148 m above sea level in Himalayas (India: 77.555°E, 34.758°N). In this nematode rectum length is nearly two times as large as anal diameter. Long rectum is characteristic only of *P. terricola* and *P. minuta*; however, in the former rectum length is 3–4 times as large as the anal diameter, whereas in the latter body length is much shorter than in the Himalayan specimen, no more than 363 μm. In the other species rectum is either shorter than or is no more than 1.5 times as large as the anal diameter. Such a character allows placing the above specimen in a new species, however, one specimen is not sufficient for this purpose.

It would be more correct to regard the earlier mentioned species (Tsalolikhin et al., 2012) *Prodesmodora* sp. (larva) from the sample of the sand beach of the Borneo Island (Malaysia) as a representative of the family Microlaimidae gen. sp. (*Cinctonema* ?).

Key to species of the genus *Prodesmodora* Micoletzky, 1923

1(12). Body length no less than 480 μm.
2(5). Rectum no less than 1.5 times as large as anal diameter.
3(4). Rectum 3–4 times as large as anal diameter . . . . . ***P. terricola*** Altherr, 1952 [(n=8): L=490–730 μm, a=21–28, b=4.8–6.5, c=5.8–8, V=48–57% (Altherr, 1952). Europe humid soil (Altherr, 1952; Andrassy, 2005)]
4(3). Rectum nearly 2 times as large as anal diameter . . . . . ***Prodesmodora*** sp. [L=857 μm, a=26.8, b=7.2, c=5.7, c´=8.8, V=42%. Rectum 31 μm, Q_1=146 μm (egg 57 × 23 μm), Q_2=126 μm (egg 58 × 23 μm). Head 19 μm, cephalic setae about 3 μm, very thin, amphid situated at a distance of 18 μm from the anterior end of the body, amphid diameter about 4 μm. NR=57%. Himalayas, spring near Nubra River: 77. 555°E, 34.758°N (Figs 1–4)]
5(2). Rectum shorter than anal diameter, equal to it, or slightly longer.
6(7). Rectum shorter than anal diameter . . . . . ***P. pantalicae*** Colomba et Vinciguerra, 1979 [(n=8): L=880–920 μm, a=26–29, b=6.4–7.2, c=6.2–7.4, V=42–46%; Italy, rhizosphere of aquatic plants (Colomba & Vinciguerra, 1979)]
7(6). Rectum equal to anal diameter or slightly longer.
8(9). Cephalic setae 5–6 μm . . . . . ***P. circulata*** (Micoletzky, 1913) Micoletzky, 1925 [(Syn. *Tripyla circulata* Micoletzky, 1913; *Microlaimus fluviatilis* Cobb, 1914; *M. menzeli* Hofmaenner, 1914; *P. wolgensis* Micoletzky, 1923). (n=7): L=470–960 μm, a=20–30.5, b=6.4–7.8, c=6.4–7.5, V=39–47% (Micoletzky, 1925).Cosmopolitan (?), bottom of fresh water-bodies, rhizosphere of aquatic plants (Andrassy, 2005)]
9(8). Cephalic setae 2–4 μm.
10(11). c´ no more than 5.4 . . . . . ***P. nigra*** Ocaña et al., 2001 [(n=4): L=530–540 μm, a=24–28, b=6.3–6.7, c=6.8–7.4, V=45–49%; Spain, soil (Ocaña & al, 2001)]
11(10). c´ no less than 5.5 . . . . . ***P. nurta*** Zullini, 1988 [(n=6): L=490–590 μm, a=22–24, b=6–6.6, c=5.9–6.6, V=43–46%; Ethiopia, Lake Zwai (bottom) (Zullini, 1988)]
12(1). Body length no larger than 420 μm.
13(14). Rectum nearly 2 times as large as anal diameter . . . . . ***P. minuta*** Schneider, 1937 [(n=2): L=332–363 μm, a=19–20, b=5.6–6.2, c=6.7–7.6, V=46–47%; Java Island, humid mosses (Schneider, 1937)]
14(13). Rectum no more than 1.5 times as large as anal diameter, equal to it or slightly smaller than anal diameter.
15(16). Amphid slightly ellipsoid . . . . . ***P. loksai*** Andrássy, 1989 [L=370 μm, a=25, b=5.8, c=6.2, V=46% (Andrássy, 1991). Ecuador, humid mosses; Hungary, humid soil (Andrássy, 1989; 2005)]
16(15). Amphid rounded.
17(18). Length of cephalic setae no more than 1/3 of head width . . . . . ***P. zullinii*** Ocaña et al., 2001 [(n=23): L=340–360 μm, a=20–32, b=5.3–5.5, c=6.2–6.8, V=49–51%; Spain, soil (Ocaña & al., 2001)]
18(17). Length of cephalic setae no less than 1/2 of head width . . . . . ***P. arctica*** (Mulvey, 1969) Andrássy, 1984 [(Syn. *Microlaimus arcticus*, Mulvey, 1969). (n=8): L=320–400 μm, a=20–32, b=5–7, c=6.7–8.2, V=48–55%; Canada, humid soil (Mulvey, 1969)]



Figs 1–4. *Prodesmodora* sp.: **1**, entire body of female; **2**, head; **3**, oesophagus; **4**, tail.

ACKNOWLEDGMENTS

I wish to thank my colleagues L. Borkin and S. Litvinchuk for collecting the nematodes in Himalayas.

REFERENCES

Altherr E. 1952. Les nématodes du Parc National Suisse. *Ergebnisse wissenschaftlichen Untersuchung des schweizerischen Nationalparks*, **3**(26): 315–356.

Andrássy I. 1989. Six new nematode species from South America. *Acta zoological Hungarica*, **35**(1–2): 1–16.

Andrássy I. 1991. The free-living nematode fauna of the Batorligen nature reserves. In: Mahunka S. (Ed.) *The Batorliget Nature Reserves*. Budapest: 129–197.

Andrássy I. 2005. *Free-living nematodes of Hungary.* **Vol. I**. Hungarian Natural History Museum. Budapest. 518 p.

Colomba G. & Vinciguerra M.T. 1979. Nematodi d'acqua della Sicilia. *Animalia (Catania*), **6**(1/3): 89–120.

Decraemer W. & Smol N. 2006. Order Chromadorida. In: Eyualem-Abebe et al. (Ed.). *Freshwater nematodes*. CABO Publishing: 502–573.

Gagarin V.G. 1978. The description of a male *Prodesmodora circulata*. *Zoologicheskiy zhurnal*, **57**(8): 1261–1262. (In Russian).

Micoletzky H. 1913. Die freilebende Süsswassernematoden der Ostalpen. *Sitzungberichten Akademie Wissencshaften Wien*, **122**(1): 543–548.

Micoletzky H. 1923. Freilebenden Nematoden der Wolga. *Arbeiten der Biologischen Wolga-Station*, **7**(1–2): 3–29.

Micoletzky H. 1925. Die Freilebende Süsswasser- und Moornematoden Dänemarks. *Mémoires de l'Académie Royale Sci. et Lett. Danemark*, **10** (2): 57–310.

Mulvey R.H. 1969. Soil-inhabiting nematodes of the orders Areolaimida, Chromadorida, Enoplida, and Monhysterida from the Canada high Arctic. *Canadian Journal of Zoology*, **47**(3): 365–382.

Ocaña A., Abolafia J., Abebe E. 2001. Description of *Prodesmodora zullinii* n. sp., *P. nigra* n.sp. and *Chiloplectus loricatus* Andrassy, 1984 from Spanish fir woodlands. *Nematology*, **3**(3): 209–218.

Schneider W. 1937. Freilebende Nematoden der Deutschen Limnologischen Sundaexpedition nach Sumatra, Java und Borneo. *Archiv für Hydrobiologie*. *Suppl.*, **15**: 30–108.

Tsalolikhin S.Ya., Alekseev V.R., Yusoff F.N. 2012. To the fauna of free-living freshwater nematodes of North Borneo. *Zoosystematica Rossica*, **21**(1): 10–17.

Zullini A. 1988. A new genus and five species of nematodes from Ethiopian lakes. *Revue Nematology*, **11**(3): 279–288.

Received April 23, 2014 / Accepted May 30, 2014