

*Zoology*

***Mesodorylaimus nudus* (Thorne, 1939) Andrásy, 1959  
(Dorilaimida: Nigolaimidae), Recorded in Georgia**

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The paper presents a description of *Mesodorylaimus nudus* (Thorne, 1939) Andrásy, 1959 (Dorilaimida: Nigolaimidae), recorded in Georgia. The material was collected in the area of hornbeam forest near Tbilisi in 2021-2022 on the left bank of the Vere River. The experimental plot and the light forests in general are characterized by brown soils of granular structure, plant roots and sandstone debris. The pH of the soil is almost neutral. Analysis of the main taxonomic groups of free living nematodes showed that the soils with a similar characteristics are dominated by the nematodes of the order Dorylaimida. The distribution of nematodes in soil layers depends significantly on variations in abiotic factors, the amount of food in the soil and the characteristics of the nematode reproduction. Recorded in Georgia *Mesodorylaimus nudus*, in its morphological features, anatomical structure and size corresponds and is similar to the species *Mesodorylaimus nudus* (Thorne, 1939), described in Kazakhstan. © 2024 Bull. Georg. Natl. Acad. Sci.

nematode, *Mesodorylaimus nudus*, morphology, amphid, taxonomy

Nematodes are one of the leading taxa among multicellular animals. Their action is multifaceted. There are numerous phytoparasitic types of soil nematodes, which are especially critical for agroecosystems because they reduce the yield of cultivated plants by about 10-17% [1]. They are often vectors and inoculators of various viral, bacterial and fungal plant diseases.

Dorylaimoid nematodes constitute a very large group among terrestrial forms and are the more abundant group. The identification of long-tailed dorylamids is always difficult. In recent decades,

several authors have tried to make the group more homogeneous together with closely related sibling genera; this has complicated identification further. The genus *Mesodorylaimus* is represented by 144 species and is one of the most important taxa among dorylaimids [2-4].

### Material and Methods

Soil material for studying nematodes was sampled in 2021-2022 in the territory of Rtskhilnari on the left bank of the Vere River (outskirts of Tbilisi), coordinates: 41° 53'06. 57" N; 44° 55'25. 43" E, at

720-750 m above sea level. The material was obtained stationary by zigzag method (Metlitsky, 1978) [6] at a spacing of 25-25 m. Soil samples were taken to a depth of 50 cm (each sample  $\approx$  300 g). A total of 156 samples were collected. The material collected using containers was transported to the laboratory for examination. Metlitsky dynamic method was used to isolate nematodes from soil [5]. Each sample was placed on a sieved cup with water in which nematodes were collected; at the same time, the nematodes were isolated using a modified Berman funnel method [6].

Nematodes were examined under a light microscope in a drop of water to which agar was added from time to time, or softened in Ringer's solution by heating to 60°C [7]. For temporary slides, 3 nematode specimens were used: 2 females and 1 male. Fixed nematodes were placed on a slide in a drop of water under a coverslip. Permanent slides were made by fixing nematodes in hot TAF [8] and processed according to the Seinhorst method [9] by gradually displacing water from glycerol. Except for body length, measurements were made in microns. All observations of slides, drawings and photographs were made with a MOTIC light microscope. Identification was done with identification plates [10, 11]. Among the nematode species studied, *Mesodorylaimus nudus* (Dorylaimida: Nygolaimidae), the first species recorded in Georgia, was identified.

**Results**

Most species are small. The cuticle is thin and smooth. The drive ring is simple. The esophagus in the back is more muscular than in the front. The male prerectum begins in the area of supplements or rarely before a series of supplements. The copulatory tubercle is absent. The sperm is spindle-shaped. Supplements are well developed, larger, closely spaced or scattered. The female's tail is usually elongated, thread-like, sometimes dome-shaped with a prominent appendage. The male's tail is short, widely rounded, ventrally concave.

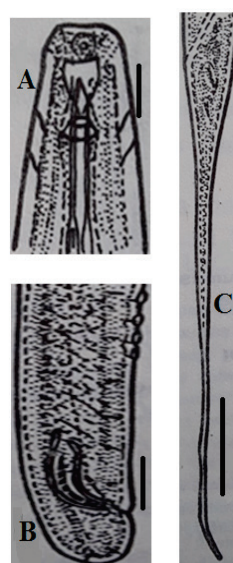
**Table. Comparative analysis of *Mesodorylaimus nudus* species (Thorne (1939)), Andrassy 1959**

Georgian <i>M. nudus</i> Andrassy, 1959	Kazakh <i>M. nudus</i> Andrassy, 1959
Female n = 3	Female n = 5
L = 1.7 mm	L = 1.8 mm
a = 4.3	a = 4.5
b = 4.4	b = 4.5
c = 6.6	c = 6.7
V = 44.5%	V = 44%
Male	Male
L = 1.5 mm	L = 1.6 mm
a = 46.5	a = 47.1
B = 4.3	b = 4.5
C = 65	c = 67

**Measurements**

Female: ♀: L=1.7 mm; a = 4.3; b = 4.4; c = 6.6; v = 44.5%;

Male: ♂: L =1.5 mm; a = 46.5; b = 4.3; c = 65.



**Fig. *Mesodorylaimus nudus* (Thorne, 1939) Andrassy 1959 (Georgian species).**

Females: The body from the nerve ring to the anus is almost cylindrical. The cuticle is thin, 1.0-1.2  $\mu$ m in the middle of the body. The lip area is smooth, rounded and merges with the body contour. The amphids are like a stirrup. Their diameter is less than 1/2 the width of the head. The spear aperture occupies 1/3 of the length of the

spear (Figure A). The cardiac bulb is slightly elongated. The esophagus is sharply dilated in the middle. The intestine is thin-walled, its cells are discolored; the length of the prerectum of the female is 3-4 times the diameter of the body, and the length of the rectum is 1.5 times the diameter of the anus. The vulva has a transverse incision. The ovaries are ovoid, short, located dorsal or ventral to the oviduct. The tail is filiform (Figure C).

Female: A: Anterior part of head, lateral side; C: tail, lateral view. Male: B: tail with spicules, lateral view (Scale: A, B = 12.5  $\mu\text{m}$ ; C = 22.5  $\mu\text{m}$ ).

Male: The body is relatively long and slender. The cuticle is smooth, and lateral pores are not prominent. The lips are well developed. The amphids are bowl-shaped, broad, located at the base of the lips. The aperture is about 40% of its length. The length of the cardia is about half of the corresponding body diameter, but in some species

it may be longer. The number of genital papillae is 12-14, which are short, detached, and indistinctly expressed. The number of submedial papillae is 10 pairs, and that of caudal papillae is at least 5 pairs. Spicules are visible on the tail (Figure B), they are short and rounded.

As a result of identification of the Georgian species *Mesodorylaimus nudus*, the species was found to be morphologically and morphometrically very similar to the species described by Andrassy in Kazakhstan (Table).

Differential diagnosis: *Mesodorylaimus nudus*, first recorded in Georgia, corresponds and is similar to *Mesodorylaimus nudus* (Thorne, 1939) Andrassy, 1959 with morphological features (amphid, stylet, spear length, tail, cardiac bulbous), structure and size. It has minor distinguishing features: thickness of cuticle and length of acute aperture.

## ზოოლოგია

# საქართველოში რეგისტრირებული *Mesodorylaimus nudus* (Thorne, 1939) Andrassy, 1959 (Nematoda: Nigolaimidae)

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ნაშრომში წარმოდგენილია საქართველოში რეგისტრირებული *Mesodorylaimus nudus*-ის (Thorne, 1939) Andrassy, 1959 (Dorilaimida: Nigolaimidae) სახეობის აღწერა. მასალა აღებულია თბილისის მიმდებარე რცხილნარის ტერიტორიაზე 2021-2022 წლებში, მდინარე ვერეს მარცხენა სანაპიროზე. კვლევის შედეგად დადგინდა, რომ საქართველოში რეგისტრირებული

*Mesodorylaimus nudus* თავისი მორფოლოგიური ნიშნებით, ანატომიური აგებულებით და განაზომებით შეესაბამება და მსგავსია ყაზახეთში აღწერილი *Mesodorylaimus nudus* (Thorne, 1939) Andrassy, 1959 სახეობისა.

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