To the fauna of free-living freshwater nematodes (Nematoda) of North Borneo
К фауне свободноживущих пресноводных нематод (Nematoda) Северного Борнео

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Free-living freshwater nematodes from Borneo Island (Kalimantan) have not been studied before. In the article, a brief list of nematodes found in shallow rivers and streams of the North Borneo (Malaysia, Sabah State) is given. The few samples with single specimens of nematodes suggest similarity of the nematode fauna of the entire Malay Archipelago.

Свободноживущие пресноводные нематоды о. Борнео (Калимантан) ранее не исследовались. В предлагаемой статье впервые приводится краткий список нематод, обнаруженных в мелких водоёмах и водотоках Северного Борнео (Малайзия, штат Сабах). Даже небольшое число проб с единичными экземплярами нематод позволяет говорить об общности нематофауны всего Малайского архипелага.

Key words: free-living nematodes, fauna, Malaysia, Borneo, Nematoda
Ключевые слова: свободноживущие нематоды, фауна, Малайзия, Борнео, Nematoda

INTRODUCTION
Among more than a hundred samples examined, the following six samples contained nematodes (all from Sabah State): 1 – Gorama River, depth 0.3 m, 5°21’05”N, 115°34’54”E, 10 June 2011; 2 – Sidummin farm, pond, 4°59’21”N, 115°31’31”E, 10 June 2011; 3 – pond, 5°21’08”N, 115°36’19”E, 10 June 2011; 4 – pond, 5°5’38”N, 116°17’49”E, 11 June 2011; 5 – small river, 4°58’51”N, 115°30’29”E, 12 June 2011; 6 – town of Kota-Kinabalu, sand beach, hollow with fresh water, 5°58’21”N, 116°3’26”E, 14 June 2011.

Brief descriptions of all the species found in North Borneo are given below (in Table 1); the most interesting of these have been illustrated and described in greater detail.

Order DESMODORIDA
Family DESMODORIDAE

Prodesmodora sp.

Material examined. One juvenile specimen from the sample 6.


Note. Schneider (1937) described new species P. minuta from Java. This species is very diminutive: female (n = 2): L = 332–363 μm, a = 19.3–21.5, b = 5–5.6, c = 7.6–8.6, V = 46–47%. There are four diminute species (L < 410 μm) and five large species (L > 500 μm) in fresh water of the world.

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All large species have long tail (c < 8.6) whereas our specimen has short tail (c = 16.3). This specimen most probably represents a new species.

Order ENOPLIDA

Suborder ONCHOLAIMITA

Family ENCHELIDIIDAE

_Eurystomina whangae_ Yeates, 1967 (Figs 1–3)

**Material examined.** One male from the sample 6.

**Description.** Male: L = 3111 μm, a = 81.9, b = 4.4, c = 42.6, c' = 2, spic. 46 μm, gub. 16 μm. Head rounded and slightly offset from body contour; cephalic diameter 22 μm. Cephalic setae 11μm long. Buccal cavity consist of two parts; in the middle of the anterior part, four rings of denticles are present; in the posterior part, three large onchs are present. Amphid 9 μm diameter, situated on the level of denticles. Oesophagus 710 μm long. Tail 73 μm long. Length of spicules makes up 1.5% of the length of the body. Distance between supplements: cloaca I = 73μm; I–II = 40μm.

**Note.** _Euristomina whangae_ was described by Yeates (1967a) from sand in 20 m inland from high tide level in Taylors Bay, near Christchurch, New Zealand.

Suborder TOBRILINA

Family TOBRILIDAE

_Brevitobrilus stefanskii_ (Micoletzky, 1925)

**Material examined.** One juvenile specimen from the sample 4.

**Note.** _Brevitobrilus stefanskii_ is a widespread polymorphic species. _Brevitobrilus_
Malayanus (W. Schneider, 1938), B. vibratus (Sukul, 1967) and B. montanus Ocaña, Hernandez et Martin, 1996 are synonyms of B. stefanskii (Tsalolikhin, 2000). For the first time, this species was found in Malay Archipelago in 1937 (Schneider, 1937) and then in Thailand and Singapore (Tsalolikhin, 2009).

Order MONONCHIDA
Suborder MONONCHULINA
Family MONONCHULIDAE

Mononchulus nodicaudatus (Daday, 1901)

Material examined. Nine females from the samples 1 and 6.


Notes. Mononchulus nodicaudatus was described by Daday (1899, 1901) from New Guinea as Prismatolaimus nodicaudatus with basic characteristics: L = 1190 μm, a = 23.8, b = 3.9, c = 9.9. Then this species was described in detail from Sumatra and Java (Schneider, 1937) as a Mononchulus. Females (n = 7): L = 875–1050 (970) μm, a = 20–28 (24), b = 3.3–4 (3.6), c = 9.2–10.4 (9.9), V = 63–65 (64)%. There are similar characteristics for M. nudicaudatus from Singapore (Tsalolikhin, 1988, 2002). Females (n = 10): L = 849–988 (933) μm, a = 22.5–27.6 (25.2), b = 3.5–4.1 (3.8), c = 8.7–10.2 (9.6), c’ = 3.3, V = 62–66 (63)%. Besides, this species was found in South America (Surinam). Females (n = 9): L = 800–1210 μm, a = 24–31, b = 3.4–4.2, c = 8.5–9.5, V = 59–63% (Loof, 1973). Two females were found in Africa (Tanganyika Lake): L = 749–823 μm, a = 27, b = 3.7, c = 8.6, V = 62% (Tsalolikhin, 1988). And fourteen females were collected from a rice field in Bangladesh: L = 1120–1290 μm, a = 33–37, b = 3.9–4.3, c = 10–11, V = 60–63% (Jairajpuri & Loof, 1965). Everywhere, males are very rare.

Mononchulus nodicaudatus is a typical hologondvanien uniform species.

Suborder MONONCHINA
Family MYLONCHULIDAE

Mylonchulus lacustris (Cobb, 1915)

(Figs 4, 5)

Material examined. Two females from the sample 5.


Note. Mylonchulus lacustris is rare but widespread species: North America, Europe, Africa, South-East Asia, Australia (Mulvey, 1961; Zullini & Peneva, 2006; Tsalolikhin, 2009). Schneider (1937) mentioned eight females from Sumatra and Java: L = 1350–1438 μm, a = 22.7–26.6, b = 3.1–3.4, c = 16.6–19.2, V = 65–69%.

Order ALAIMIDA
Family ALAIMIDAE

Alaimus similis Thorne, 1939

Material examined. One female from the sample 6.

Measurement. Female: L = 1535 μm, a = 52.9, b = 7, c = 16.5, c’ = 5, V = 38%.

Note. For the first time, this species was found in North America (Thorne, 1939) and then in Africa (Andrassy, 1965). A similar species, A. siddiqii Andrassy, 1970, was...
found in a puddle in Vietnam (Andrassy, 1970) and in silt of a little river in Thailand (Tsakolikhin, 2009).

Order DORYLAIMIDA
Suborder IRONINA
Family IRONIDAE
Ironus longicollis Daday, 1899
= Ironus ignavus paludicola Schneider, 1937.

Material examined. Two females from the sample 5.


Note. For the first time, this species was described from Sumatra by Daday (1899) and then as I. ignavus paludicola by Schneider (1937).

Suborder DORYLAIMINA
Family DORYLAIMIDAE
Dorylaimus stagnalis Dujardin, 1845

Material examined. One female and one male from the sample 3.

Note. A hackneyed species, cosmopolite.

Mesodorylaimus hofmaenneri
(Menzel, 1914)

Material examined. One female and three males from the sample 1.

Description. Female: L = 1538 μm, a = 35.7, b = 4.6, c = 11.2, c’ = 6.5, V = 46%; males (n = 3): L = 1176–1520 μm, a = 37–51, b = 3.1–4.4, c = 40–76, c’ = 0.8–1.2, suppl. 13–14, spic. 37–38 μm. Head 10 μm wide. Spear 13–14 μm long, aperture of spear 1/3 its length. Oesophagus 320–346 μm long, NR = 35–38%. Vulva–anus/tail = 6.5. Rectum 36 μm long, prerectum 64 μm long. Tail 137 μm long (female) and 20–32 μm long (male).

Note. This species was found in Europe, North America (Andrassy, 1986) and Sumatra and Java (Schneider, 1937). Schneider (1937) indicated it as Dorylaimus hofmaenneri. Females (n = 5): L = 1038–1319 μm, a = 31.3–38.4, b = 4.2–4.7, c = 5.3–10.6, V = 39–47%. Male: L = 1082 μm, a = 29, b = 4.4, c = 57, spic. 35–39 μm. Spear 12–15 μm long.

Family APORCELAIMIDAE
Aporcelaimellus obtusicaudatus
(Bastian, 1865)

Material examined. Three females from the sample 5.


Note. For the first time, this species was described from Sumatra by Daday (1899) and then as I. ignavus paludicola by Schneider (1937).

Family NYGOLAIMIDAE
Nygolaimus sp.
(Figs 6–8)

Material examined. One male from the sample 6.

Description. Male: L = 1964 μm, a = 41.8, b = 3.9, c = 41.8, c’ = 1.5, suppl. 4+1, spic. 53 μm. Head 15 μm wide. Spear 12 μm long. Oesophagus 500 μm long. Tail 47 μm long.

Note. Nygolaimus thornei Schneider, 1937 was described as Aquatides thornei from Sumatra and included in this genus by Heyns (1968). The specimen examined by us is most probably a new species of the genus Nygolaimus.
Family **LEPTONCHIDAE**

*Meylis multipapillatus* (Meyl, 1956)  
(Figs 9–11)

*Material examined.* One female from the sample 6.

*Description.* Female: L = 1540 μm, a = 39.5, b = 5.2, c = 64.2, c’ = 1, V = 44%. Head 17 μm wide, spear 15 μm long. Oesophagus 294 μm long, “bulb” 61 × 15 μm. Tail 21 μm long.

Note. This species was known from moist sandy soil in Brasil as *Leptonchus multipapillatus* (Loof, 1963).

**Family ACTINOLAIMIDAE**

*Mactinolaimus omercooperi* (Filipjev, 1931)

*Material examined.* Four males from the samples 3 and 4.


**Order TYLENCHIDA**

**Family DOLICHODORIDAE**

*Neodolichodorus* sp.

*Material examined.* One juvenile (during molting) from the sample 6.


*Note.* *Neodolichodorus arenarius* (Clark, 1963) was described from low sand dunes in New Zealand as *Dolichodorus arenarius* by Clark (1963) and included in this genus by Andrassy (1976). The specimen examined by us cannot be identified with certainty. Our specimen is possibly a new species.

**DISCUSSION**

Even a few samples with single specimens of nematodes suggest similarity of nematode fauna of entire Malay Archipelago where freshwater nematodes have been studied since 1899 (Daday, 1899; Schneider, 1937; Nicholas & Stewart, 1984; some others). Moreover, a similarity of free-living freshwater nematode fauna of the entire South-East Asia (Tsalolikhin, 2001; 2009) and partly of New Zealand (Clark, 1963; Yeates, 1967a, 1967b, 1967c) is observed. Most species found in this region are cosmopolites.

**REFERENCES**


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