第18卷 第3期
1994 年 9 月

水 生 生 物 学 报
ACTA HYDROBIOLOGICA SINICA

Vol.18, No.3
Sept., 1994

武陵山地区鱼类寄生杆咽属线虫两新种

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提 要

本文报道在武陵山地区的白甲鱼[(*Varicorhinus* (*Onychostoma*) *simus* (Sauvage et Dabry)]和泸溪直口鲮(*Rectoris luxiensis* Wu et Yao)中发现的两种杆咽属(*Rhabdochona*)线虫新种,定名为白甲鱼杆咽线虫,新种(*Rhabdochona onychostomi* sp. nov.)和短咽杆咽线虫,新种(*Rhabdochona brevichona* sp. nov.),并对两新种进行了测量和详细的描述。

关键词 杆咽属线虫,新种,武陵山

作者于 1988 年 4—6 月,10—12 月在武陵山的沅江、澧水和乌江水系 9 个点检查鱼类 59 种 929 尾,共收集线虫 24 种,分隶于 5 目 8 科 13 属,本文对其中的杆咽属线虫两新种进行了报道。

根据 Yamaguti 的分类系统,杆咽属(*Rhabdochona* Railliet, 1916)隶于旋尾目(Spiruridea Diesing, 1861)杆咽科(Rhabdochonidae Skrjabin, 1946),主要为淡水鱼类寄生虫。此属线虫种类很多,据记载就有 38 种[1]。其后二十多年来,经过不断地发现,已记述的种类达 84 种[2]。在我国先后发现和报道了杆咽属线虫 21 种,其中有 17 种是在我国发现的新种。

本文所用标本按常规方法收集、固定、透明、观察。测量单位为 mm。

1. 白甲鱼杆咽线虫 *Rhabdochona onychostomi* sp. nov. (图 1)

寄主: 白甲鱼[*Varicorhinus* (*Onychostoma*) *simus* (Sauvage et Dabry)]。

寄生部位: 肠。

采集地点: 贵州印江(印江河),四川黔江(唐岩河)。

标本: 正模 1♂,配模 1♀,副模 4♂4♀,保存于中国科学院水生生物研究所鱼病室。

虫体白色,中等大小,体表光滑。口圆形,口囊杯状,其前端内侧有 8 个小齿,基部内侧有 4 个小齿。咽呈长管形。食管由较短的肌肉部和较长的腺体部构成。神经环位于食管肌肉部接近前端处。排泄孔位于食管肌肉部中部稍前的腹面。颈乳突为二叉乳突,位于咽中部左右的侧面。

雄虫: 尾部向腹面弯曲,尾端呈锯齿状,或钝尖。肛前乳突 7 对,第 5 对位于侧面,其余 6 对位于亚腹面,第 6、7 对乳突之间的距离较近;肛后乳突 7 对,第 2 对位于侧面,其余

修改稿1993年8月6日收到。

6 对位于亚腹面。交合刺两根，不同形不等长，左交合刺细长，右交合刺粗短，两者长度之比约为 9.5：1。

根据 5 条雄虫的测量结果如下：体长 5.883—9.368，体宽 0.101—0.110。口囊长 0.017—0.020，口囊宽 0.011—0.012。咽长 0.105—0.129，咽宽 0.004。食管肌肉部长 0.290—0.375，食管腺体部长 2.510—3.216。神经环至前端 0.147—0.185。排泄孔至前端 0.247—0.297。颈乳突至前端 0.070—0.082。左交合刺长 0.777—0.840，右交合刺长 0.079—0.080。尾长 0.241—0.295。

雌虫：尾部伸直，尾顶部有小尖突。阴道肌肉质，通向后。卵椭圆，成熟卵含胚胎。

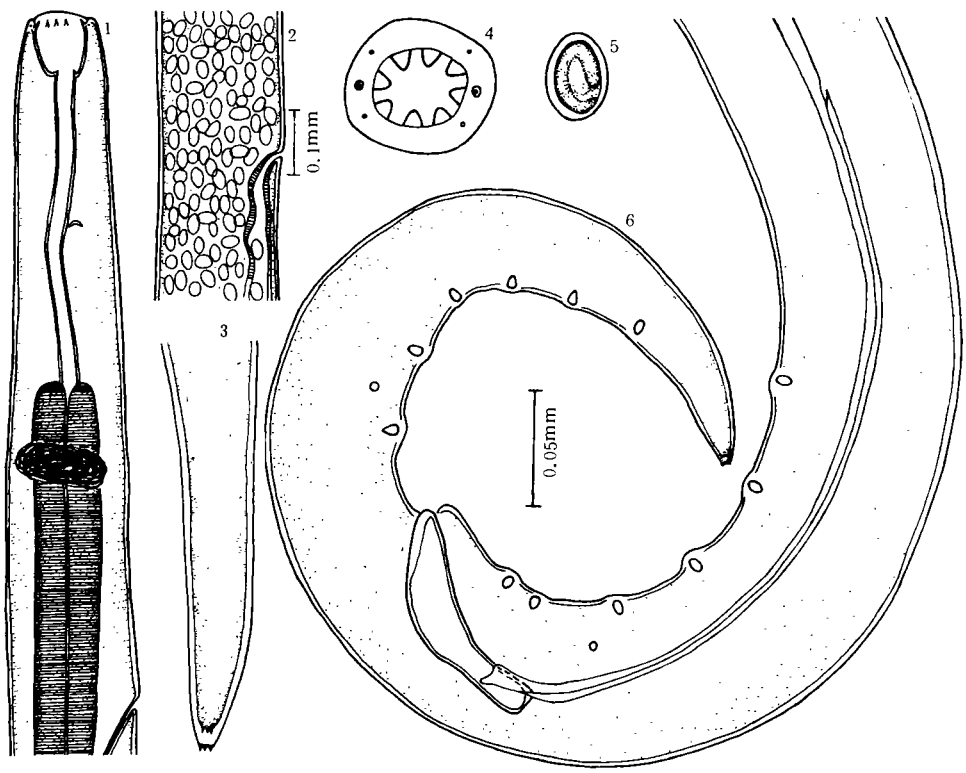


图 1　白甲鱼杆咽线虫，新种　*Rhabdochona onychostomi* sp. nov.(除 2 外，其余各图的比例与 6 同)

1. 雌虫头部，侧面观　Head portion of female (lateral view)；2. 雌虫阴门部，侧面观　Vulva region (lateral view)；3.雌虫尾部　Tail portion of female；4. 雌虫头端，顶面观　Head end of female (top view)；5. 雌虫体内的成熟卵　Mature egg (observed within body)；6. 雄虫尾部，侧面观　Tail portion of male (lateral view).

根据 5 条雌虫的测量结果如下：体长 16.541—23.295，体宽 0.161—0.241。口囊长 0.021—0.024，口囊宽 0.012—0.013。咽长 0.110—0.121，咽宽 0.004—0.005。食道肌肉部长 0.401—0.437，食管腺体部长 4.073—5.478。神经环至前端 0.174—0.182。排泄孔至前端 0.287—0.308。颈乳突至前端 0.077—0.083。阴门至前端 8.758—12.114，阴门至后端 7.783—11.181，两者长度之比为 1.1：1。成熟卵的大小为 0.035—0.038×0.021—0.025 (n=20)。

讨论：这种杆咽线虫，具有神经环较靠前、尾长、雌虫尾端顶部有小尖突、雄虫左右交

合刺长度之比例较大、肛后乳突 7 对等特征，这些特征使它区别于本属中其他种。与本虫形态较相似的是福建杆咽线虫（*Rhabdochona fujianensis* Wang, 1986）[3]，但仍有显著不同：(1)本种线虫雄虫左交合刺（长度为 0.777—0.840）比福建杆咽线虫的左交合刺（长度为 0.544—0.560）长得多，而右交合刺的长度则相近；(2)雄虫肛前乳突 7 对，1 对位于侧面，而福建杆咽线虫雄虫肛前乳突 6 对都位于亚腹面；(3)雌虫尾端顶部有小尖突，而福建杆咽线虫则无。鉴于以上理由，宜将此种杆咽线虫定为新种，因在白甲鱼中发现，故定名为白甲鱼杆咽线虫。

2. 短咽杆咽线虫，新种 *Rhabdochona brevichona* sp. nov.（图 2）

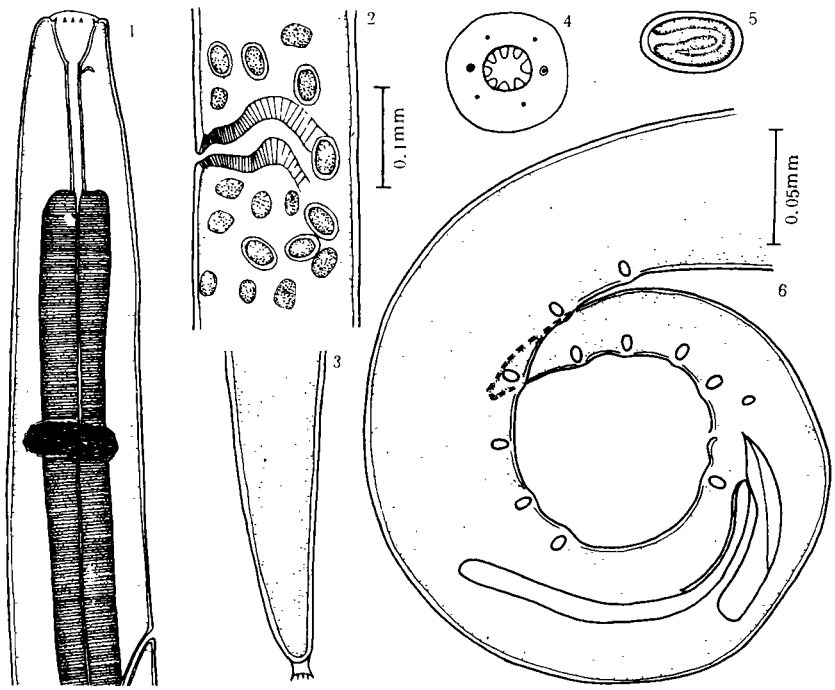


图 2 短咽杆咽线虫，新种 *Rhabdochona brevichona* sp. nov.

1. 雄虫头部，侧面观 Head portion of female (lateral view); 2. 雌虫阴门部，侧面观 Vulva region (lateral view); 3. 雌虫尾部 Tail portion of female; 4. 雌虫头部，顶面观 Head end of female (top view); 5. 雌虫体内的成熟卵 Mature egg (observed within body); 6. 雄虫尾部，侧面观 Tail portion of male (lateral view).

寄主：泸溪直口鲶（*Rectoris luxiensis* Wu et Yao）。

寄生部位：肠。

采集地点：四川黔江（唐岩河）。

标本：正模 1♂，配模 1♀，副模 1♂3♀，保存于中国科学院水生生物研究所鱼病室。

虫体中等大小。口圆形；口囊漏斗状，其前端内侧有 8 个小齿，基部内侧有 2 个小齿，不甚发达。咽呈管形，特别短，仅约为口囊的两倍。食管由较短的肌肉部和较长的腺体部构成。神经环位于食管肌肉部的中部。排泄孔位于食管肌肉部的后端腹面。颈乳突相当靠前，约位于口囊与咽的交界处的侧面。

雄虫:尾部向腹面弯曲,尾端呈截形。肛前乳突 7 对,均位于亚腹面,第 7 对乳突紧靠肛门,第 6、7 对乳突之间的距离是其他各对乳突之间距离的两倍多;肛后乳突 5 对,第 1 对位于侧面,其余 4 对位于亚腹面。交合刺两根,不同形不等长,左交合刺长于右交合刺,两者长度之比例约为 2.4 : 1。

2 条雄虫的测量结果如下:体长 6.951—7.202,体宽 0.096—0.110。口囊长 0.021—0.024,口囊宽 0.011。咽长 0.045—0.046,咽宽 0.003。食管肌肉部长 0.193—0.236,食管腺体部长 1.528—1.554。神经环至前端 0.169—0.174。排泄孔至前端 0.224—0.255。颈乳突至前端 0.024—0.029。左交合刺长 0.161—0.174,右交合刺长 0.067—0.070。尾长 0.126—0.147。

雌虫:尾部伸直,尾端具僧帽状构造,其顶部具小刺;尾帽长约为 0.005。阴道肌肉质,阴门位于体中部稍后的腹面。卵椭圆形。

根据 4 条雌虫的测量结果如下:体长 10.077—12.167,体宽 0.204—0.257。口囊长 0.026—0.027,口囊宽 0.012—0.014。咽长 0.046—0.054,咽宽 0.004。食管肌肉部长 0.249—0.287,食管腺体部长 1.903—3.055。神经环至前端 0.161—0.188。排泄孔至前端 0.276—0.295。颈乳突至前端 0.024—0.029。尾长 0.182—0.201。阴门至前端长 5.581—6.700,阴门至后端长 5.360—5.467,二者长度之比例约为 1.16 : 1。卵的大小为 0.038—0.040 × 0.025—0.027 (n = 20)。

讨论:本种杆咽线虫,咽特别短,颈乳突极其靠前。雌虫尾端具僧帽状构造,雄虫尾端呈截形。雄虫肛前第 6、7 对乳突之间的距离很远,两根交合刺均比较短小。这些显著的特征使本种线虫区别于其他种。

在目前已发现的 84 种杆咽属线虫中,雌虫具尾帽的有尾冠杆咽线虫(*Rhabdochona coronacauda*)、尾帽杆咽线虫(*R. chodukini*)、*R. sarana* 和 *R. barusi* 等。其中 *R. sarana* 被认为是尾帽杆咽线虫的同物异名(Kalyankar, 1972)[4];而 *R. barusi* 的虫卵具有 4 个浮器(Majumdar et al, 1971)[5],尾冠杆咽线虫在颈乳突后至肛门间具有侧翼;尾帽杆咽线虫的咽较长、交合刺较长(长刺为 0.410—0.420,短刺为 0.120)、尾冠为环列叶状冠等。这些特征显然与本种不同。

由于以上这些理由,本种杆咽线虫宜作为新种。根据其咽短的特征,定名为短咽杆咽线虫,新种。

参　考　文　献

[1] Yamaguti S. Systema Helminthum. Vol III. The Nematodes of Vertebrates, Part I. Interscience Publishers. 1961: 7—81.

[2] Moravec F, Huffman D G. *Rhabdochona longleyi* sp. n. (Nematoda: Rhabdochonidae) from blind catfishes, *Trogloglanis pattersoni* and *Satan eurystomus* (Ictaluridae) from the subterranean waters of Texas. *Folia Parasitol.*, 1988, **35**: 235—243.

[3] 汪溥钦。我国鱼类杆咽线虫六新种。动物分类学报,1986, 11 (4): 351—364。

[4] Kalyandar S D. On some interesting nematodes of fishes from India. *Riv. Parasit.*, 1972, **33**: 281—288.

[5] Majumdar G, et al. *Rhabdochona barusi* sp. nov. from the fish *Barilius* sp. with the key to the Indian species of this genus. *Folia Parasitol.*, 1971, **18**: 381—384.

STUDIES ON TWO NEW SPECIES OF *RHABDOCHONA* (PARASITIC NEMATODES) FROM WULING MOUNTAIN REGION

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Abstract

During April—June and October—December, 1988, 929 fish belonging to 59 species were examined in Wuling Mountain Region. and 24 species of nematodes were collected and identified. There are six species belonging to the genus *Rhabdochona* Railliet, 1916, and two of them are new to science. The new species are *Rhabdochona onychostomi* sp. nov. and *R. brevichona* sp. nov. Descriptions (measurements in millimeter) are given as follows:

1. *Rhabdochona onychostomi* sp. nov.

Host: *Varicorhinus* (*Onychostoma*) *simus* (Sauvage et Dabry)

Location: Intestine.

Locality: Yinjiang County, Guizhou Province; Qianjiang County, Sichuan Province.

Specimens: Holotype (1♂), allatype (1♀) and paratype (4♂ 4♀) are deposited in the Laboratory of Fish Diseases, Institute of Hydrobiology, The Chinese Academy of Sciences.

Description: Medium-sized nematode. Buccal capsule cup-shaped, with 4 basal teeth; the anterior margin armed with 6 teeth. Nerve ring located near the anterior extremity of muscular oesophagus. Excretory pore located near or anterior to the middle of muscular oesophagus. Cervical papillae bifurcate, and located near the middle of pharynx.

Male: (5 specimens) Length of body 5.883— 9.368. Maximum width 0.101—0.110. Buccal capsule 0.017—0.020 long and 0.011—0.012 wide. Pharynx 0.105—0.129 long and 0.004 wide. Length of muscular oesophagus 0.290— 0.375, and that of glandular oesophagus 2.510—3.216. Nerve ring 0.147—0.185, excretory pore 0.247—0.297 and cervical papillae 0.070—0.082 from anterior extremity. Seven pairs of preanal papillae, the fifth lateral, and others subventral; distance between the sixth pair and the seventh pair shorter than between others. Seven pairs of postanal papillae, the second pair lateral, and others subventral. Left spicule thin and elongate and 0.777—0.840 in length. Right spicule thick and short, and 0.079— 0.080 in length. Length ratio of spicules 9.5 : 1. Tail curved ventrally, its length 0.241—0.295, with a saw-tooth-like or blunt tip.

Female: (5 specimens) Length of body 16.541— 23.295. Maximum width 0.161—0.241. Buccal capsule 0.021—0.024 long and 0.012—0.013 wide. Pharynx 0.110—0.121 long and 0.004—0.005 wide. Length of muscular oesophagus 0.401—0.437, and that of glandular oesophagus 4.073—5.478. Nerve ring 0.174—0.182, excretory pore 0.287—0.308 and cervical

papillae 0.077—0.083 from anterior extremity. Tail provided with processes, 0.351—0.413 long. Vulva postequatorial. Distance between the vulva and anterior extremity 8.758—12.114, and that between the vulva and posterior extremity 7.783—11.181; the ratio of the two distances 1.1 : 1. Size of mature eggs 0.035—0.038 × 0.021—0.025 (n = 20).

Discussion: This species is different from other nematodes in that its nerve ring is relatively close to the anterior extremity of muscular oesophagus; the tail is long; tail of the female is provided with processes; the length ratio of spicules in the male is rather high; and there are 7 pairs of postanal papillae.

R. onychostomi is very similar to *R. fujianensis* Wang, 1986, but the former has longer left spicule (0.777—0.840) than the latter (0.544—0.560), and bears 7 instead of 6 pairs of preanal papillae; the tail of the female in the former is provided with processes.

2. *Rhabdochona brevichona* sp. nov.

Host: *Rectoris luxiensis* Wu et Yao

Location: Intestine.

Locality: Qianjiang County, Sichuan Province.

Specimens: Holotype (1♂), allotype (1♀), and paratype (1♂3♀) are deposited in the Laboratory of Fish Diseases, Institute of Hydrobiology, The Chinese Academy of Sciences.

Description: Medium-sized nematode. Buccal capsule funnel-shaped, with 2 poorly developed basal teeth; anterior margin armed with 8 teeth. Pharynx very short, about twice as buccal capsule. Cervical papillae bifurcate, and located near the base of buccal capsule.

Male: (2 specimens) Length of body 6.951— 7.202. Maximum width 0.096—0.110. Buccal capsule 0.021—0.024 long and 0.011 wide. Pharynx 0.045—0.046 long and 0.003 wide. Length of muscular oesophagus 0.193—0.236, and that of glandular oesophagus 1.528—1.554. Nerve ring 0.169—0.174, excretory pore 0.224—0.255 and cervical papillae 0.024—0.029 from anterior extremity. 7 pairs of preanal papillae, the seventh very close to anus. Distance between the sixth and seventh pairs more than twice the distance between other pairs. All papillae subventral. 5 pairs of postanal papillae, the first pair lateral, others subventral. Left spicule 0.161—0.174 and right spicule 0.067—0.070 in length. Length ratio of spicules 2.4 : 1. Tail curved ventrally, 0.126—0.147 long, with a truncated tip.

Female: (4 specimens) Length of body 10.077— 12.167. Maximum width 0.204—0.257. Buccal capsule 0.026—0.027 long and 0.012—0.014 wide. Pharynx 0.046—0.054 long and 0.004 wide. Length of muscular oesophagus 0.249— 0.287, and that of glandular oesophagus 1.903—3.055. Nerve ring 0.161—0.188, excretory pore 0.276—0.295 and cervical papillae 0.024—0.029 from anterior extremity. Tail 0.182—0.201 long, with crown-like appendage provided with processes. Vulva postequatorial. Distance between vulva and the anterior extremity 5.581—6.700 and that between vulva and posterior extremity 5.360—5.467; ratio of the two distances 1.16 : 1. Size of mature eggs 0.038—0.040 × 0.025—0.027 (n = 20).

Discussion: The new species has a very short pharynx; cervical papillae are located very

anteriorly (near the base of buccal capsule); tail of the male has a truncated tip; distance between the sixth and the seventh preanal papillae of male is very long. These characters make the species different from other members of the genus *Rhabdochona*.

At present the genus *Rhabdochona* includes a total of 84 species. The species which have crown-like appendage provided with processes at the female tail extremity include *Rhabdochona coronacauda*, *R. chodukini*, *R. sarana* and *R. barusi* etc. Among them, *R. sarana* was regarded as the synonym of *R. chodukini*. *R. barusi* has 4 floats in the egg. *R. coronacauda* has lateral alae extending approximately from deirids to anal opening. In *R. chodukini*, the pharynx and the spicules are relatively long, and the tail crown consists of processes arranged in two circles. These characters make them different from the above new species.

Key words Nematodes, *Rhabdochona*, New species, Wuling Mountain Region