

广西鲇属一新种及其性状讨论 (鲇形目, 鲇科)

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摘要 根据采自广西都安县的 16 尾鲇类标本鉴定描述了鲇属鱼类 1 新种, 即都安鲇 *Silurus duanensis* sp. nov.。新种具有下颌突出于上颌, 背鳍条 i-3, 臀鳍条数较少; 颌须长; 犁骨齿带分成两片; 胸鳍硬刺前缘有颗粒状突起, 后缘有明显的锯齿; 后鼻孔呈短管状, 且呈圆形张开等综合特征。上述性状可区别于属内其他已知种类。

关键词 鲇形目, 鲇科, 鲇属, 新种, 广西。

中图分类号 Q959.4

鲇属 *Silurus* 鱼类隶属于鲇形目 Siluriformes 鲇科 Siluridae, 1758 年由林奈建立。该属鱼类种类较多, 目前全世界记录有 15 种, 他们广泛分布于欧亚大陆的淡水水域中。我国是其主要分布区, 已记录有 9 种 (Chu *et al.*, 1999), 从黑龙江流域向南到海南岛和云贵高原的部分内流水域都有其分布。其属征为: 头大且圆; 吻平扁; 眼小, 侧上位, 被皮膜覆盖; 前后鼻孔相隔较远, 前鼻孔呈短管状, 后鼻孔圆形张开或呈闭合状; 无鼻须; 颌须 1 对, 颌须 1 或 2 对; 背鳍短小, 无硬刺; 无脂鳍; 臀鳍基很长, 后端与尾鳍相连; 胸鳍具硬刺, 其前缘光滑、粗糙或者具明显锯齿; 尾鳍后缘近平截或稍凹。

1996 年 5 月、2001 年 5 月和 2001 年 6 月 3 次在广西都安县地苏乡境内共采集到 16 尾鲇类标本, 经鉴定为鲇属鱼类 1 新种, 特撰文记述之。另外, 在陈湘舜 (1977) 和褚新洛等 (1999) 编写的中国鲇属种类检索表的基础之上编制了新的分种检索表。

1 新种描述

都安鲇, 新种 *Silurus duanensis* sp. nov. (图 1~2)

正模标本: 编号 ASIZB73176, 全长 374 mm, 体长 341 mm。1996 年 5 月采自广西都安地苏, 采集地点属红水河水系 (珠江流域西江的一大支流)。

副模标本: 编号 ASIZB73172-73, 73175, 全长 215~361 mm, 体长 176~319 mm, 采集时间地点同

正模; ASIZB73174, 全长 302 mm, 体长 278 mm, 于 2001 年 5 月采到, 采集地点同正模; ASIZB73317-18, 全长 82~85 mm, 体长 72~76 mm, 于 2001 年 5 月采到, 采集地点同正模; ASIZB73319-27, 全长 100~123 mm, 体长 86~108 mm, 于 2001 年 6 月采到, 采集地点同正模。

模式标本存于中国科学院动物研究所鱼类标本馆。

背鳍条 i-3, 胸鳍条 i-11~14, 腹鳍条 i-8~12, 臀鳍条 ii-55~63; 鳃耙 10~12; 游离的脊椎骨 4+56~57。

体长为体高的 5.6 (5.3~6.0) 倍, 为头长的 4.5 (4.3~4.7) 倍, 为前背长的 3.1 (3.0~3.2) 倍。头长为吻长的 2.6 (2.5~3.0) 倍, 为眼径长的 10.5 (8.7~12.8) 倍, 为眼间距的 1.7 (1.5~2.0) 倍, 为头宽的 1.2 (1.1~1.3) 倍, 为口裂宽的 1.5 (1.4~1.6)。体高为尾柄高的 3.3 (2.9~3.6)。

体延长, 头部平扁, 背鳍以后侧扁。头中等大, 吻圆钝且平扁。口大, 亚上位, 下颌突出于上颌, 背视闭合后看不到下颌齿带。上、下颌具锥形细齿, 形成新月形的宽齿带, 下颌齿带中央分离, 犁骨齿形成左右各一条斜位的纺锤形齿带。眼小, 位于头侧上方, 眼间隔宽且平坦。前、后鼻孔分隔较远, 前鼻孔呈短管状; 后鼻孔圆形, 张开。颌须较长, 后伸超过胸鳍起点或胸鳍条的末端; 颌须较颌须为

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短。鳃孔大, 鳃盖膜不与鳃峡相连。

背鳍基极短, 无骨质硬刺, 起点位于胸鳍条末端垂直上方之前。臀鳍很长, 后端与尾鳍相连, 相接处有一缺刻; 臀鳍基距尾鳍基远大于至胸鳍基后端。胸鳍硬刺前缘具颗粒状小突起, 后缘具明显锯

齿或稍弱, 其长为鳍条之半。腹鳍小, 起点位于背鳍基后端垂直下方稍后, 距胸鳍基后端大于距臀鳍起点的距离。肛门距臀鳍起点较距腹鳍基后端为远。尾鳍近平截, 上、下叶等长。

酒精溶液浸泡标本身体后部下侧呈淡棕黄色,

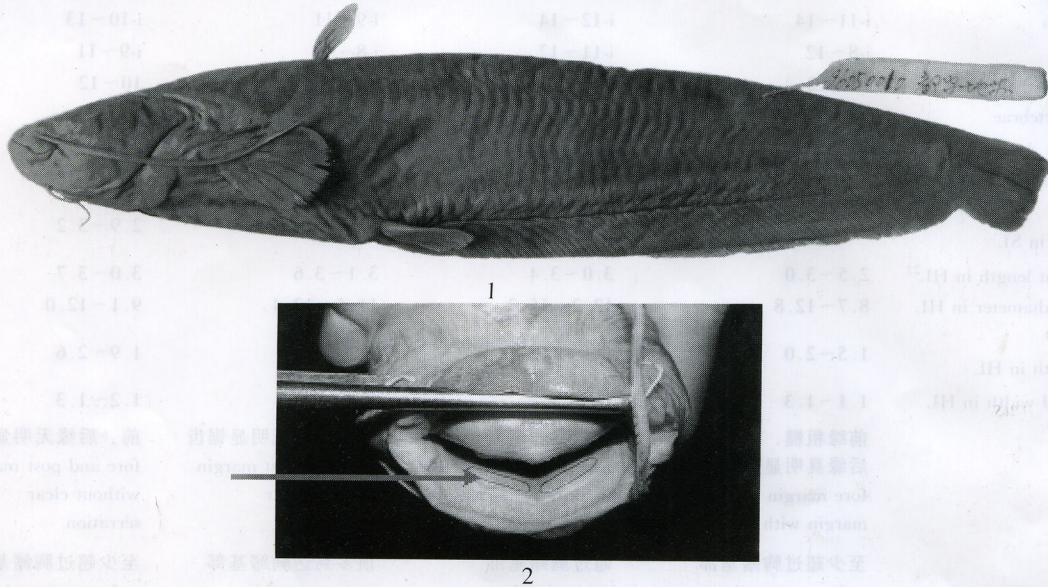


图 1~2 都安鲇, 新种 *Silurus duanensis* sp. nov.

1. 正模标本 (holotype) 2. 犁骨齿带 (vomerine teeth)

背上部呈灰黑色。

新种学名“duan”示新种模式标本产自广西都安县。

新种下颌突出于上颌, 明显有别于西江鲇 *Silurus gilberti* 和越南鲇 *S. cochinchinensis*, 而与在我国分布的属内其它已知 7 个种一致, 新种可通过不同的鉴别特征与我国分布的其它已知种区分。1) 新种除下颌突出于上颌这一特征与小背鳍鲇 *S. microdorsalis* 相似外, 背鳍条 i-3 这个性状也与后者一致, 但与后者的体形差别很大, 彼此极易区分; 已知分布区也相距甚远, 小背鳍只分布在鸭绿江和辽河水系, 新种目前仅发现在广西都安的地下河中或地下河出口附近 (属珠江流域的红水河水系)。2) 新种口裂末端向后仅达与眼前缘相对的位置和尾鳍上下叶等长这两个性状明显与大口鲇 *S. meridionalis* 和怀头鲇 *S. soldatovi* 区别 (后两者口裂末端向后达与眼球中央线或以后相对的位置和尾鳍上叶略长于下叶)。3) 新种胸鳍硬刺前缘略显粗糙 (有颗粒状突起) 而非明显的锯齿状突起, 以及犁骨齿带分为两块, 这两个性状明显有别于鲇 *S. asotus* 而与昆明鲇 *S. mento*、抚仙鲇 *S. grahami* 和兰州鲇 *S.*

lanzhuensis 相近, 但新种: 1) 臀鳍条和游离脊椎骨数较少 (分别为 55~63 和 56~57) 可以与兰州鲇相区别 (后者分别为 77~86 和 63~66), 两者的分布区也相距较远, 彼此存在明显的地理隔离; 2) 颌须明显远超过胸鳍基, 区别于昆明鲇 (后者颌须最多到达胸鳍基), 而且昆明鲇现知仅分布于云南滇池; 3) 背视上、下颌闭合后看不到下颌齿带, 后鼻孔圆形张开, 胸鳍硬刺后缘具明显锯齿, 臀鳍条 55~63, 而抚仙鲇背视上、下颌闭合后能够清楚的看到下颌齿带, 后鼻孔呈裂缝状、闭合, 胸鳍后缘没有明显的锯齿, 臀鳍条 68~74 (表 1)。

2 讨论

在整理检视新种标本时, 发现有 3 尾幼鱼标本 (IZCAS73317-18, 体长 72~76 mm; IZCAS73320, 体长 94 mm) 具 2 对颌须, 另外还有 1 尾幼鱼 (IZCAS73327, 体长 90 mm) 竟然有 3 条颌须 (其中一条较退化)。又观察了这个属其他种类的标本, 并查阅了相关文献, 发现颌须数目不稳定的现象在其它某些鲇类鱼中也存在。

Bornbusch 等 (1995) 对这种颌须数目的个体发

表 1 新种与近似种的比较

Table 1. Comparison of *Silurus duanensis* sp. nov. with similar species.

	都安鲇, 新种 <i>S. duanensis</i> sp. nov.	兰州鲇 ¹⁾ <i>S. lanzhouensis</i>	昆明鲇 ¹⁾ <i>S. mento</i>	抚仙鲇 ¹⁾ <i>S. grahami</i>
背鳍 Dorsal fin	i-3	i-3~4	i-4~5	i-3~4
臀鳍 Anal fin	55~63	77~86	61~72	68~74
胸鳍 Pectoral fin	i-11~14	i-12~14	i-9~11	i-10~13
腹鳍 Pelvic fin	i-8~12	i-11~12	i-8~10	i-9~11
鳃耙 Gill rakers	10~12	10~13	12~14	10~12
游离脊椎骨 Vertebrae	56~57	63~66	52~56	58~59
体长/体高 Body depth in SL ²⁾	5.3~6.0	5.4~6.6	5.1~5.5	5.8~6.6
体长/头长 Head length in SL	4.3~4.7	4.7~5.0	4.0~4.7	4.3~5.0
体长/背鳍前长 Predorsal length in SL	3.0~3.2	3.0~3.3	2.6~3.0	2.9~3.2
头长/吻长 Snout length in HL ²⁾	2.5~3.0	3.0~3.4	3.1~3.6	3.0~3.7
头长/眼径 Eye diameter in HL	8.7~12.8	12.2~15.3	11.5~12.4	9.1~12.0
头长/眼间距 Interorbital length in HL	1.5~2.0	1.1~1.8	2.2	1.9~2.6
头长/头宽 Head width in HL	1.1~1.3	1.3~1.4	1.4~1.6	1.2~1.3
胸鳍硬刺 Pectoral spine	前缘粗糙, 后缘具明显锯齿 fore margin coarse, post margin with clear serration	前缘具弱锯齿 fore margin with margin coarse	前、后缘无明显锯齿 without clear serration	前、后缘无明显锯齿 without clear serration
上颌须 Maxillary barbels	至少超过胸鳍基部 at least surpassing base of pectoral fin	超过胸鳍基部 surpassing base of pectoral fin	顶多到达胸鳍基部 at most reaching base of pectoral fin	至少超过胸鳍基部 at least surpassing base of pectoral fin
犁骨齿带 Vomerine teeth	中间分开 separated in the middle	中间分开 separated in the middle	中间分开 separated in the middle	中间分离不明显 separated in the middle unclear
前、后鼻孔 Anterior and posterior nostril tubular	短管状 short tube-like	前鼻孔短管状, 后鼻孔闭合状 anterior nostril short tube- like, posterior nostril closed	短管状 short tube-like	前鼻孔短管状, 后鼻孔闭合状 anterior nostril short tube-like, posterior nostril closed
分布 Distribution	广西都安地下河 Du'an, Guangxi	黄河上游 upper-reach of the Yellow River	云南滇池 Dianchi Lake in Yunnan	云南抚仙湖、 星云湖和阳宗海 Fuxian, Xingyun and Yangzong Lakes in Yunnan

1) 所用数据依褚新洛等, 1999. (Data used from Chu, 1999)

2) SL: 标准体长; HL: 头长. (SL: Standard length; HL: Head length)

育变异作了很好的观察和研究, 他们发现在 *Pterocryptis* 属内, 标准长小于 55~65 mm 的幼鱼标本具有 2 对颌须, 随着体长的增加, 其中 1 对会慢慢消失. 颌须 1 对或 2 对往往与鱼的年龄或个体大小有关, 他们发现当标准长大于 75 mm 时, 就只保留 1 对颌须了. 另外, 在鲇类 *Ompok* 属、*Silurus* 属和 *Wallago* 属等鱼类中也存在类似的现象 (Ng, 2001).

那么, 颌须数量的变化是否在种类鉴定时变得没有意义了呢? Ng, H. H. (2001) 研究了越南 *Pterocryptis* 属的种类后指出, 在同一种内同样大小的个体中出现这两种类型的可能性是很小的, 颌须

的数目在一定程度上可以用作鉴别特征. 我们也注意到, 在描记的新种中较大个体颌须的数目是稳定的, 颌须数目的变化只发现于较小的个体.

3 中国鲇属种类检索表

- 1 (4) 上颌突出于下颌
- 2 (3) 具须 3 对 (西江水系、海南岛) 西江鲇 *S. gilberti*
- 3 (2) 具须 2 对 (珠江、九龙江水系、海南岛) 越南鲇 *S. cochinchinensis*
- 4 (1) 下颌突出于上颌
- 5 (6) 背鳍极短, 体高为尾柄高的 2 倍左右 (鸭绿江、辽河水系) 小背鳍鲇 *S. microdorsalis*
- 6 (5) 背鳍较长, 体高为尾柄高的 3 倍以上
- 7 (16) 口裂浅, 末端仅与眼前缘相对; 尾鳍上下叶长度相当

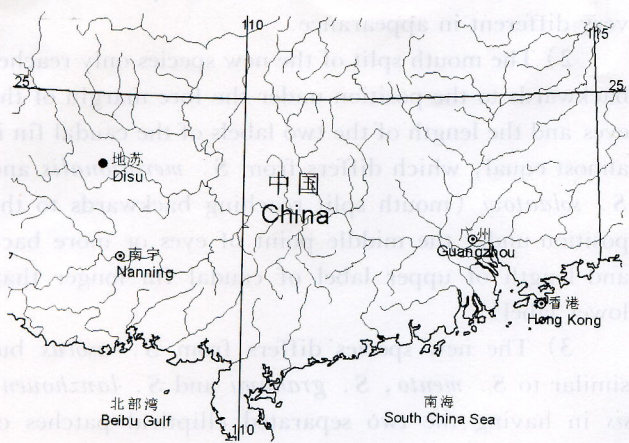


图3 都安鲇的分布，★广西地苏

Fig.3. The distribution of *S. duanensis* sp. nov. ★Disu, Guangxi

- 8 (9) 胸鳍硬刺前缘有明显锯齿；犁骨齿带连成一片（珠江、长江、黄河、黑龙江等水系）…………… 鲇 *S. asotus*
- 9 (8) 胸鳍硬刺前缘粗糙或具弱锯齿，犁骨齿带分为两条
- 10 (15) 臀鳍条数较少，在 77 根以下；游离脊椎骨数 59 枚以下；眼径较大
- 11 (12) 颌须短，最多达胸鳍基部（云南滇池、异龙湖）…………… 昆明鲇 *S. mento*
- 12 (11) 颌须长，至少超过胸鳍基部
- 13 (14) 背视上下颌闭合可见下颌齿带（云南抚仙湖）…………… 抚仙鲇 *S. grahami*
- 14 (13) 背视上下颌闭合看不见下颌齿带（珠江流域的红水河）…………… 都安鲇，新种 *S. duanensis* sp. nov.
- 15 (10) 臀鳍条数较多，在 78 根以上；游离脊椎骨 60 以上；眼睛较小（黄河上游）…………… 兰州鲇 *S. lanzhouensis*

A NEW SPECIES OF THE GENUS *DUANENSIS* (SILURIFORMES, SILURIDAE) FROM GUANGXI, CHINA

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Abstract In the present paper, we describe a new species *Silurus duanensis* sp. nov. of the genus *Silurus* based on 16 specimens collected from Guangxi, China. The new species differs from its congeners by having following combination characters: D. i-3, A. 55-63, maxillary barbels much surpassing backwards the base of pectoral fin, vomerine teeth patches separated into two elliptical parts, the pectoral spine without clear serration on its fore margin, the posterior nostril round and open. We also revise the key to the Chinese species of the genus *Silurus*.

- 16 (7) 口裂较深，末端向后至少与眼球中部相对；尾鳍上叶长于下叶
- 17 (18) 成体具须 2 对，头较短（珠江、闽江、湘江和长江等水系）…………… 大口鲇 *S. meridionalis*
- 18 (17) 成体具须 3 对，头较长（黑龙江和辽河水系）…………… 怀头鲇 *S. soldatovi*

致谢 承蒙中国科学院动物研究所孟凯巴依尔先生协助修改图 2，特此致谢。

REFERENCES (参考文献)

Bornbusch, A. H. 1991. Monophyly of the catfish family Siluridae (Teleostei: Siluriformes), with a critique of previous hypotheses of the family's relationships. *Zool. J. Linn. Soc.*, 101: 105-120.

Chen, X-L 1977. A review of the Chinese Siluridae. *Acta Hydrobiologica Sinica*, 6 (2): 197-216. [陈湘舜, 1977. 我国鲇科鱼类的总述. 水生生物学集刊, 6 (2): 197~216]

Chu, X-L, Zheng, B-S, Dai, D-Y et al. 1999. Fauna Sinica, Osteichthyes, Siluriformes. Science Press, Beijing. 77-88. [褚新洛, 郑葆珊, 戴定远等, 1999. 中国动物志, 硬骨鱼纲, 鲇形目. 北京: 科学出版社. 77~88]

Kobayakawa, M. 1989. Systematic revision of the catfish genus *Silurus*, with description of a new species from Thailand and Burma. *Jap. J. Ichthyol.*, 36 (2): 155-186.

Kobayakawa, M. 1992. Comparative morphology and development of bony elements in the head region in three species of Japanese catfishes (*Silurus*: Siluridae: Siluriformes). *Japanese J. Ichthyol.*, 39 (1): 25-36.

Ng, H. H. and Freyhof, J. 2001. A review of the catfish genus *Pterocryptis* (Siluridae) in Vietnam, with the description of two new species. *Journal of Fish Biology*, 59: 624-644.

Tchang, C-L 1960. A review of the Chinese Silure. People's Education Press, Beijing. 6-10. [张春霖, 1960. 中国鲇类志. 北京: 人民教育出版社. 6~10]

Zheng, B-S et al., 1981. The freshwater fishes of Guangxi, Guangxi People's Press, Nanning. 178-179. [郑葆珊等, 1981. 广西淡水鱼类志. 南宁: 广西人民出版社. 178~179]

Silurus duanensis sp. nov. (Figs.1-2)

Holotype. No. ASIZB73176, total length 374 mm, standard length 341 mm, collected from underground rivers of Disu Town (23° 34' N, 108° 01' E), Du'an County, Guangxi, where belongs to the Hongshui River of the Pear River Basin, in May 1996.

Paratypes. Nos. ASIZB73172-73, 73175, total length 215-361 mm, standard length 176-319 mm, the collection data is as the holotype; ASIZB73174, total length 302 mm, standard length 278 mm, collected in May 2001 in the same collection site as the holotype;

ASIZB73317-18, total length 82-85 mm, standard length 72-76 mm, collected in May 2001 in the same collection site as the holotype; ASIZB73319-27, total length 100-123 mm, standard length 86-108 mm, collected in June 2001 in the same collection site as the holotype.

All the type specimens are kept in the Fish Collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing.

D. i-3; P. i-11-14; V. i-8-12; A. ii-55-63. gill rakers 10-12, vertebrae 4 + 56-57.

Depth of body 5.6 (5.3-6.0), length of head 4.5 (4.3-4.7), length of predorsal 3.1 (3.0-3.2) in standard length. Length of snout 2.6 (2.5-3.0), diameter of eye 10.5 (8.7-12.8), interorbital length 1.7 (1.5-2.0), width of head 1.2 (1.1-1.3) in head length. Depth of caudal peduncle 3.3 (2.9-3.6) in depth of body.

The new species differs clear from *S. gilberti* and *S. cochinchinensis* but similar to the other species of the genus distributed in China by having longer lower jaw than upper jaw. And the new species can be separated from the other species by the following comparison.

1) The new species shares the common character in having 3 branched dorsal fin rays with *S. microdorsalis*, but later was only found in Yalu River

basin in Northern China and the two species are also very different in appearance.

2) The mouth split of the new species only reaches backwards to the position under the fore margin of the eyes and the length of the two labels of the caudal fin is almost equal, which differs from *S. meridionalis* and *S. soldatovi* (mouth split reaching backwards to the position under the middle point of eyes or more back and length of upper label of caudal fin longer than lower label).

3) The new species differs from *S. asotus* but similar to *S. mento*, *S. grahami* and *S. lanzhouensis* in having the two separated elliptical patches of vomerine teeth (vs continuous vomerine teeth patches in *S. asotus*) and without clear serration on fore margin of pectoral fins (vs clear serration in *S. asotus*).

4) The new species differs from *S. lanzhouensis* in having less branched anal fin rays and vertebra (55-63 and 56-57 vs 77-86 and 63-66, respectively); differs from *S. mento* in having maxillary barbels much surpassing backwards base of pectoral fin (vs at most reaching base of pectoral fin in *S. mento*); differs from *S. grahami* in having invisible teeth patch of the lower jaw when the mouth closed (vs visible teeth patch of the lower jaw when the mouth closed in *S. grahami*) (Table 1).

Key words Siluriformes, Siluridae, *Silurus*, new species, Guangxi.

Abstract: In the present paper, we describe a new species *Silurus duanensis* sp. nov. of the genus *Silurus* based on 16 specimens collected from Guangxi, China. The new species differs from its congeners by having following combination characters: D. i-3, A. ii-55-63, maxillary barbels much surpassing backwards the base of pectoral fin, vomerine teeth patches separated into two elliptical parts, the pectoral spine without clear serration on its fore margin, the posterior nostril round and open. We also review the key to the Chinese species of the genus *Silurus*.

Abstract: 在本文中, 我们描述了一个新物种 *Silurus duanensis* sp. nov. 属于 *Silurus* 属, 基于从广西采集到的 16 个标本。该新物种与其近缘种的区别特征如下: 背鳍 3 枚, 腹鳍 55-63 枚, 颌须明显超过胸鳍基部的后方, 舌颌骨由两个椭圆形部分组成, 胸鳍棘的前缘没有明显的锯齿, 后鼻孔圆形且开放。我们还回顾了 *Silurus* 属的中国物种的检索表。

A NEW SPECIES OF THE GENUS *SILURUS* (SILURIFORMES, SILURIDAE) FROM GUANGXI, CHINA

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Abstract: In the present paper, we describe a new species *Silurus duanensis* sp. nov. of the genus *Silurus* based on 16 specimens collected from Guangxi, China. The new species differs from its congeners by having following combination characters: D. i-3, A. ii-55-63, maxillary barbels much surpassing backwards the base of pectoral fin, vomerine teeth patches separated into two elliptical parts, the pectoral spine without clear serration on its fore margin, the posterior nostril round and open. We also review the key to the Chinese species of the genus *Silurus*.

Silurus duanensis sp. nov. (Fig. 1-2).
 Holotype, No. ASIZB7317, total length 374 mm, standard length 341 mm, collected from underground rivers of Dian Town (22°34' N, 108°41' E), Jiu'an County, Guangxi, where belongs to the Hongshui River of the Pear River basin, in May 1996.
 Paratypes, Nos. ASIZB7318-27, 73175, total length 215-361 mm, standard length 176-319 mm, the collection data is as the holotype; ASIZB73174, total length 302 mm, standard length 278 mm, collected in May 2001 in the same collection site as the holotype.