



## A new species of *Trichelix* Ancey, 1887 from northeast Guangxi, China (Gastropoda, Stylommatophora, Camaenidae)

Ran-Xi Lin<sup>1</sup>, Li-Wen Lin<sup>2</sup>

<sup>1</sup>State Key Laboratory for Conservation and Utilization of Subtropical Agro-Bioresources,  
College of Agriculture, South China Agricultural University, Guangzhou 510642, China

 <https://orcid.org/0009-0009-3422-1438>

<sup>2</sup>24 Fengdanbailu, 185 Xiufeng Road, Jin'an District, Fuzhou 350012, China;

 <https://orcid.org/0000-0001-9467-6893>

**Abstract:** A new species of camaenid land snail, *Trichelix yao* **n. sp.**, is described from Guangxi, China, based on its morphological characteristics. *Trichelix yao* **n. sp.** differs from all known congeners by its distinctly depressed, non-biconcave shell with prominent furrows, a palatal fold that does not extend to the aperture, a basal fold that reaches the aperture and forms a tooth. This discovery extends the known distribution of *Trichelix* in southern China and helps bridge the distribution gap of this genus in Guangxi.

**Key words.** Taxonomy, land snails, Guangxi, new species, new provincial record

### Introduction

The genus *Trichelix* Ancey, 1887 is a group of small to medium-sized land snails, characterized by a slightly flattened to concave shell with a hairy periostracum, which will fall off when the shells reach full maturity for some species, the elevated parietal callus, and the descending anteriorly last whorl with external furrows (Ancey, 1887; Sutcharit *et al.*, 2020; Lin & Lin, 2022).

*Trichelix* currently includes seven species distributed across East Asia and continental Southeast Asia (Sutcharit *et al.*, 2020; Lin & Lin, 2022). *Trichelix horrida* (Pfeiffer, 1863) occurs in northern Laos and Vietnam (Sutcharit *et al.*, 2020). *Trichelix eucharista* (Pilsbry, 1901), *Trichelix diminuta* (Pilsbry & Hirase, 1905) and *Trichelix tokunoensis* (Pilsbry & Hirase, 1905) are restricted to the Amami Islands in the central Ryukyu Islands, Japan (Sutcharit *et al.*, 2020). The remaining three species are found in southern China: *Trichelix biscalpta* (Heude, 1885) from Chongqing, *Trichelix hiraseana* (Pilsbry, 1905) from Taiwan, and *Trichelix xiaoxiang* Lin & Lin, 2022 from Hunan (Sutcharit *et al.*, 2020; Lin & Lin, 2022).

In this study, *Trichelix yao* **n. sp.** is described and illustrated as a species new to science from Guangxi Zhuang Autonomous Region, China. This discovery fills a gap in the distribution records of *Trichelix* in Guangxi and suggests that additional, yet-undiscovered species of this genus may occur in this region.

## Materials and methods

Living specimens were first submerged in pure water for 6 h, then immersed in boiling water for 1 min. The separated animal tissues were fixed in 70% ethanol, while the corresponding empty shells were cleaned and air-dried. Shells were photographed using a Nikon D80 camera with a Laowa 60 mm F2.8 Macro 2:1 lens. The number of shell whorls was counted according to Kerney & Cameron (1979). Specimens were deposited in the Mollusk Collection, Museum of Hebei University (HBUMM, Baoding, China).

## Systematics

Family **Camaenidae** Pilsbry, 1895

Genus ***Trichelix*** Ancey, 1887

*Trichelix* Ancey, 1887: 64; Schileyko, 2003: 1513; Sutcharit et al., 2020: 68.

*Helix* (*Stegodera*) [*Trihelix*] Pilsbry, 1890: 6 (as a group of subgenus, incorrect subsequent spelling); Pilsbry, 1895: 289.

*Moellendorffia* (*Trihelix*) – Pilsbry, 1905: 65. (incorrect subsequent spelling)

*Moellendorffia* (*Trichelix*) – Zilch, 1960: 612.

**Type species.** *Helix horrida* Pfeiffer, 1863, by monotypy.

***Trichelix yao* R.-X. Lin & L.-W. Lin, n. sp.**

瑶绒粒螺

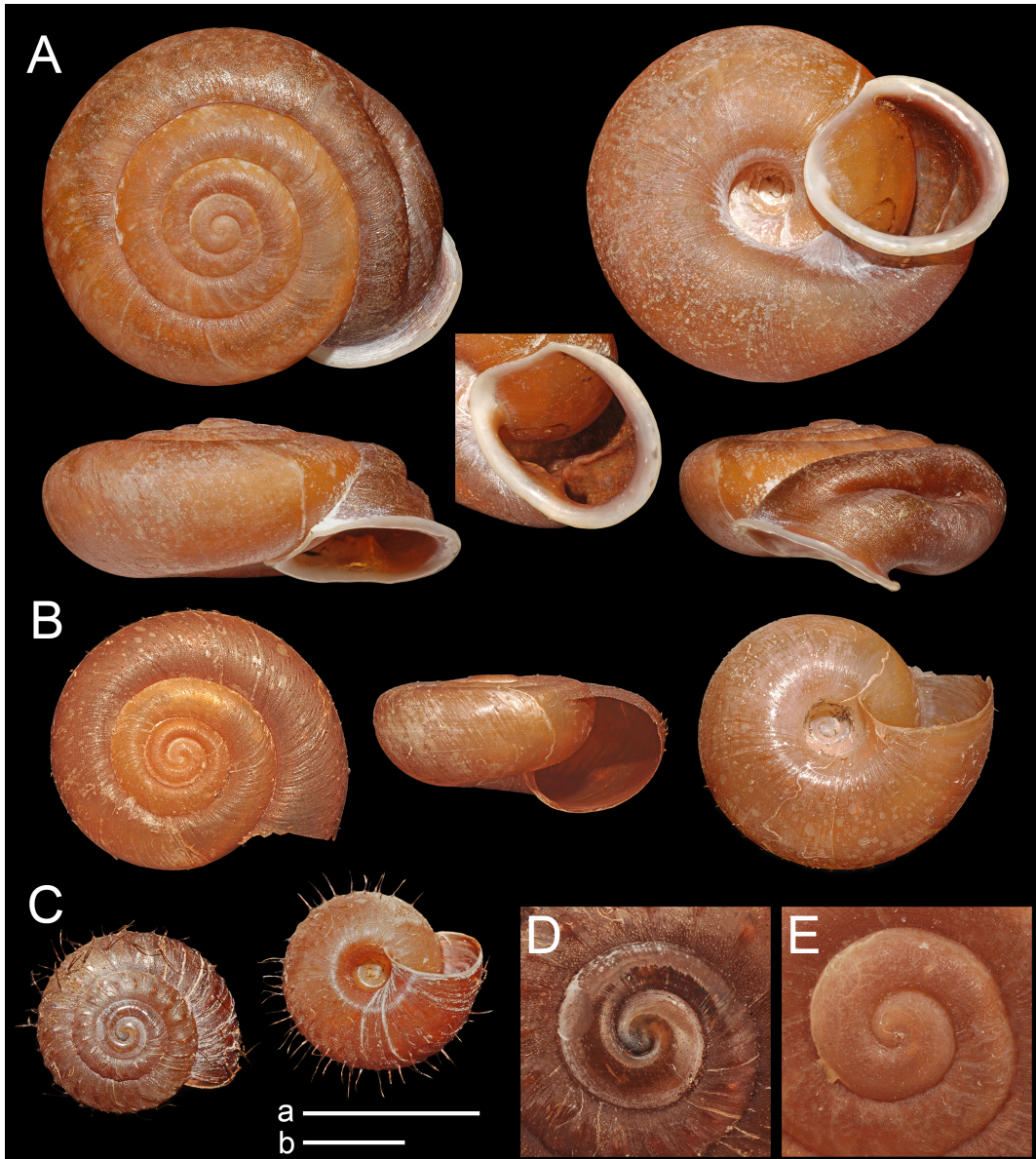
(Figures 1, 2)

**Type materials.** *Holotype*: HBUMM 10076, mature shell, Lianhuashan scenic area [莲花山景区], Dayaoshan National Nature Reserve [大瑶山国家级自然保护区], Jinxiu Yao Autonomous County [金秀瑶族自治县], Laibin City [来宾市], Guangxi Zhuang Autonomous Region [广西壮族自治区], China, 110°7'15"E, 24°9'16"N, 18 July 2024, leg. Wen-Yong Feng; *Paratypes*: HBUMM 10077, two subadult shells, other information same as holotype.

**Etymology.** The species is named after the Yao people, a minority ethnic group in China and continental Southeast Asia. Type locality of the new species, Dayao Mountain, is one of their traditional settlement areas.

**Diagnosis.** Shell medium-sized, depressed. Shell surface with long hairs but usually worn away upon maturity. Two palatal folds present, with corresponding deep furrows present distinctly on the shell surface. Upper palatal fold prominent, extending from ¼ of the body whorl from aperture to a distance behind the aperture. Basal palatal fold extends from umbilical suture at ¼ of the body whorl before aperture to just behind the aperture, weaker than former. Aperture oval, strongly downward sloping.

**Description.** *Shell* (Fig. 1) dextral, medium-sized, depressed with rounded periphery, consisting of 4.5 reddish brown and rather thick whorls separated by shallow suture. Protoconch composed of 1.5 smooth to somewhat glossy whorls. Shell surface with long and sparse periostracal



**Figure 1.** *Trichelix yao* n. sp. A–C. Shells. D–E. Protoconch. A, E. HBUMM 10076, holotype. B. HBUMM 10077/a, paratype. C–D. HBUMM 10077/b, paratype. Scale bar a = 10 mm (A–C), b = 2 mm (D–E). Photographs: Li-Wen Lin.

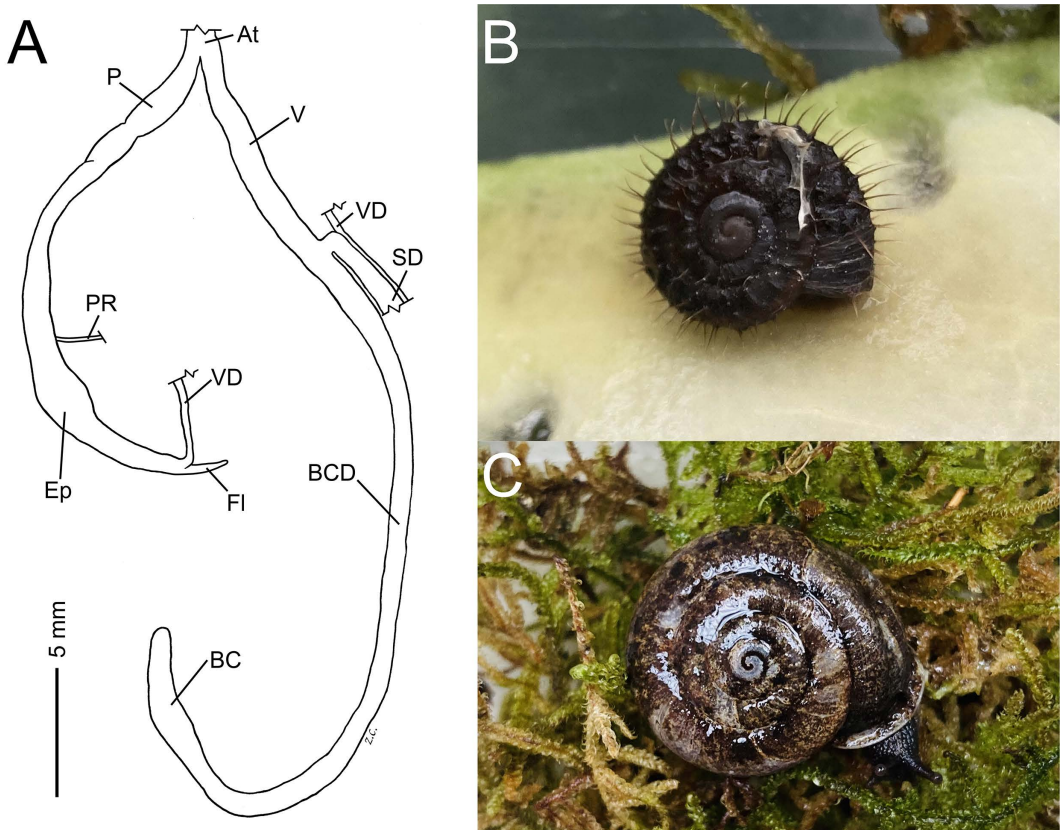
hairs, distinct in subadults but usually worn away upon maturity, leaving only blurred periostracal folds. Teleoconch surface with small tubercles arranged in oblique rows along the lines of growth, distinct on the dorsal side and around umbilical region. Two palatal folds present, highest parts oppositely positioned, with corresponding deep furrows present distinctly on the shell surface. Upper palatal fold prominent, situated along the periphery, extending from  $\frac{1}{4}$  of the body whorl from aperture to a distance behind the aperture, internally highest at its midpoint. Basal palatal fold

extends from umbilical suture at  $\frac{1}{4}$  of the body whorl before aperture to just behind the aperture, weaker than former. Body whorl strongly descending about  $\frac{1}{8}$  of a whorl behind the aperture. Aperture oval, strongly downward sloping, forming an angle with shell axis. Peristome expanded and very slightly reflexed, with a yellowish white margin. Parietal callus thicken but not expand. Umbilicus open and wide, approximately  $\frac{1}{5}$  of shell diameter, with protoconch visible inside.

**Genitalia** (Fig. 2A). Atrium short. Penis medium in length, consistent swelled, with longitudinal, thin, smooth pilasters internally. Epiphallus medium in length, distinctly inflated, longer than penis. Penis retractor muscle long, thick at the ends. Flagellum short and slightly thick, tapering distally. Vas deferens long and moderately thin. Vagina short and slightly thick. Spermooviduct cylindrical, shorter and thinner than vagina. Bursa copulatrix oval and thin, with a long and tapering pedunculus. Bursa copulatrix duct long, the middle part thinner than the ends.

**Measurements.** Adult: Shell height = 9.8 mm, shell width = 23.7 mm (*holotype*), subadult shells: shell height = 11.3–16.9 mm, shell width = 6.1–8.1 mm (*paratypes*).

**Remarks.** The new species can be distinguished from *Trichelix* species that lack lamellar teeth, which are primarily distributed in Vietnam and Laos, by the presence of such teeth. Among *Trichelix*



**Figure 2.** A. Genitalia of *Trichelix yao* n. sp. B–C. Living specimens of *Trichelix yao* n. sp. Abbreviations: At. Atrium; BC. bursa copulatrix; BCD. bursa copulatrix duct; Ep. epiphallus; FI. flagellum; P. penis; PR. penial retractor muscle; SD. spermooviduct; V. vagina; VD. vas deferens. Images: Zhe-Yu Chen (A) and Ran-Xi Lin (B–C).



species with lamellar teeth, the new species differs from those without a biconcave shell shape mainly by having more shell whorls and deeper palatal folds, with the exception of *Trichelix biscalpta* (Heude, 1885) and *Trichelix hiraseana* (Pilsbry, 1905). *Trichelix biscalpta* is characterized by a long and strong upper palatal lamella that extends to the aperture, resulting in a curved aperture, which distinguishes it from the new species. While the new species shares some similarities with *Trichelix hiraseana*, it has a more rounded aperture and a basal lamella that is notably longer and deeper than that of the latter.

**Distribution and ecology.** This species is known from the type locality only, where it is typically active in leaf litter or humus.

### Acknowledgements

We thank Yu-Tong Ding [丁雨桐] (Durham University) for sharing specimens of this species. Zhe-Yu Chen [陈哲宇] (The University of Melbourne) is greatly appreciated for his invaluable assistance with the genitalia images. Thanks go to Zhong-Guang Chen [陈重光] (Nanchang University) and an anonymous reviewer for their helpful comments on the manuscript. Special thanks are also due to the Biodiversity Heritage Library ([www.biodiversitylibrary.org](http://www.biodiversitylibrary.org)) for granting access to a wealth of rare literature.

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## 广西壮族自治区东北部绒粒螺属一新种记述

(腹足纲：柄眼目：坚螺科)

林然熙<sup>1</sup> 林理文<sup>2</sup>

<sup>1</sup> 华南农业大学农学院 亚热带农业生物资源保护与利用国家重点实验室

广州 510642 广东省 中国

<sup>2</sup> 枫丹白鹭 秀峰路 185 号 晋安区 福州 350012 福建省 中国

### 摘 要

本文基于形态学特征，记述了产自广西大瑶山国家级自然保护区的陆生贝类一新种：瑶绒粒螺 *Trichelix yao* n. sp.。该新种可通过以下特征与已知同属种相区分：壳形明显扁平且非双凹型；具两个腭褶，对应的深沟在壳表清晰可见：上腭褶不延伸至壳口，基褶则延伸至壳口并形成齿突。这一新物种的发现拓展了绒粒螺属 *Trichelix* Ancey, 1887 在中国南方的分布范围。

**关键词：**新种，形态学，分类学，陆生贝类，省级新纪录